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JPEG/sup ++/: selective compression for high quality color desktop publishing

- *Ligtenberg, A.*

Storm Technol. Inc., Palo Alto, CA, USA

*This paper appears in: **Compcon Spring '91. Digest of Papers***

On page(s): 349 - 353

25 Feb.-1 March 1991

1991

ISBN: 0-8186-2134-6

Number of Pages: xiv+599

References Cited: 0

INSPEC Accession Number: 4076410

Abstract:

The JPEG (Joint Photographic Experts Group) algorithm is the international standard for still image compression and has already been implemented in some video display system and color scanners. An extension to JPEG, known as JPEG/sup ++/, allows a far greater range of compression and quality options for graphics users. To complete the implementation of compression in the graphics production chain, JPEG will be implemented in color printers. The authors provide an overview of the JPEG compression standard and the JPEG/sup ++/ extension and discuss their application to high-quality color desktop publishing.

Index Terms:

JPEG/sup ++/; selective compression; high quality color desktop publishing; Joint Photographic Experts Group; international standard; still image compression; video display systems; graphics users; color printers; computerised picture processing; data compression; desktop publishing; multimedia systems; standards

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Then click **Search Again**.

Results:

Journal or Magazine = **JNL** Conference = **CNF** Standard = **STD**

1 When your PDM/EDM/KM gets on top of you! [product data management/electronic document management/knowledge management]

O'Meara, D.

PDM Implementation - Pains and Gains (Ref. No. 2000/054), IEE Seminar , 2000

Page(s): 1/1 -1/5

[\[Abstract\]](#) [\[PDF Full-Text\]](#) **CNF**

2 From WYSIWYG to WYSIWIS: research on CSCW based CAD

He Fa-Zhi; Wan Shao-Mei; Sun Guo-Zheng

Communications, 1999. APCC/OECC '99. Fifth Asia-Pacific Conference on ... and Fourt Optoelectronics and Communications Conference , Volume: 2 , 1999

Page(s): 1095 -1096 vol.2

[\[Abstract\]](#) [\[PDF Full-Text\]](#) **CNF**

3 XML documents production for an electronic platform of requests for proposals

Bapst, F.; Vanoirbeek, C.

Reliable Distributed Systems, 1999. Proceedings of the 18th IEEE Symposium on , 1999

Page(s): 330 -335

[\[Abstract\]](#) [\[PDF Full-Text\]](#) **CNF**

4 ZPL's WYSIWYG performance model

Chamberlain, B.L.; Lin, C.; Sung-Eun Choi; Snyder, L.; Lewis, E.C.; Weathersby, W.D

High-Level Parallel Programming Models and Supportive Environments, 1998.

Proceedings. Third International Workshop on , 1998

Page(s): 50 -61

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5 Multiviews interfaces for multimedia authoring environments

Jourdan, M.; Roisin, C.; Tardif, L.

Multimedia Modeling, 1998. MMM '98. Proceedings. 1998 , 1998

Page(s): 72 -79

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6 Usability requirements as specification constraints: an example of WYSIWY
Roast, C.R.; Siddiqi, J.I.
Software Engineering. IEE Proceedings , Volume: 144 Issue: 2 , April 1997
Page(s): 101 -110

[\[Abstract\]](#) [\[PDF Full-Text\]](#) **JNL**

7 WYSIWYG colour generating system development
Byoung-Ho Kang; Jin-Seo Kim; Chang-Rak Yoon; Maeng-Sub Cho
Systems, Man, and Cybernetics, 1997. Computational Cybernetics and Simulation.,
1997 IEEE International Conference on , Volume: 2 , 1997
Page(s): 1396 -1400 vol.2

[\[Abstract\]](#) [\[PDF Full-Text\]](#) **CNF**

8 Problems with styles in word processing: a weak foundation for electronic publishing with SGML
Sorgaard, P.; Sandahl, T.I.
System Sciences, 1997, Proceedings of the Thirtieth Hawaii International Conference o
Volume: 6 , 1997
Page(s): 137 -146 vol.6

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9 Authoring MHEG presentations with GLASS-Studio
Leidig, T.; Rosch, P.
Multimedia Software Development, 1996. Proceedings., International Workshop on ,
1996
Page(s): 150 -158

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10 A system for semiconductor process specification
Durbeck, D.; Jue-Hsien Chern; Boning, D.S.
Semiconductor Manufacturing, IEEE Transactions on , Volume: 6 Issue: 4 , Nov. 1993
Page(s): 297 -305

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11 Some ergonomic improvements of text error detection and prevention in DTP-systems
Backmutsky, V.; Zmudikov, V.
Document Analysis and Recognition, 1993., Proceedings of the Second International
Conference on , 1993
Page(s): 947 -950

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12 Lilac: a two-view document editor
Brooks, K.P.

Computer, Volume: 24 Issue: 6, June 1991
Page(s): 7 -19

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13 Classification and image recognition methods in desktop publishing system

Backmutsky, V.; Shenkman, A.

Electrical and Electronics Engineers in Israel, 1991. Proceedings., 17th Convention of 1991

Page(s): 163 -165

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14 The VIS-5D system for easy interactive visualization

Hibbard, B.; Santek, D.

Visualization, 1990. Visualization '90., Proceedings of the First IEEE Conference on , 1990

Page(s): 28 -35, 462

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15 Supporting document development with Concordia

Walker, J.H.

System Sciences, 1988. Vol.II. Software Track, Proceedings of the Twenty-First Annual Hawaii International Conference on , 1988

Page(s): 355 -364

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16 Quill: an extensible system for editing documents of mixed type

Chamberlin, D.D.; Hasselmeier, H.F.; Luniewski, A.W.; Paris, D.P.; Wade, B.W.; Zolliker, M.L.

System Sciences, 1988. Vol.II. Software Track, Proceedings of the Twenty-First Annual Hawaii International Conference on , 1988

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17 Modes, WYSIWYG and the von Neumann bottleneck

Thimbleby, H.

Formal Methods and Human-Computer Interaction: II, IEE Colloquium on , 1988

Page(s): 4/1 -4/5

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18 IEE Colloquium on 'Formal Methods and Human-Computer Interaction: II' (Digest No.82)

Formal Methods and Human-Computer Interaction: II, IEE Colloquium on , 1988

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The visual development of documents

- Martin, M.

New Mexico State Univ., Albuquerque, NM, USA

This paper appears in: Professional Communication Conference, 1988. IPCC '88 Conference Record. On the Edge: A Pacific Rim Conference on Professional Technical Communication., International

On page(s): 7 - 10

5-7 Oct. 1988

1988

Number of Pages: xx+383

References Cited: 4

INSPEC Accession Number: 3349784

Abstract:

Information processing theory is applied to documents to analyze the visual processing the page. Research on readers' perceptions of graphic characteristics and spatial organization is examined. A method is presented that increases the efficiency of developing and using a document by applying information processing principles and research on perception. It is concluded that, by applying principles of information theory, the semiology of graphic characteristics, and reader's spatial perception of the page, the desktop publisher can develop visually efficient documents, improving not only the reader's comprehension of the document but also the document development process.

Index Terms:

reader perceptions; information processing theory; visual development; documents; graphic characteristics; spatial organization; information theory; semiology; desktop publisher; visually efficient documents; document development process; business graphics; desktop publishing; human factors; information theory; technical presentation visual perception

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A document preparation paradigm based on the specification method of layout structure

- Watanabe, T.; Uda, A.; Sugie, N.

Dept. of Inf. Eng., Nagoya Univ., Japan

This paper appears in: TENCON '94. IEEE Region 10's Ninth Annual International Conference. Theme: Frontiers of Computer Technology. Proceedings of 1994

On page(s): 887 - 891 vol.2

22-26 Aug. 1994

1994

ISBN: 0-7803-1862-5

IEEE Catalog Number: 94CH3417-3

Number of Pages: 2 vol. xxvii+1111

References Cited: 10

INSPEC Accession Number: 4847798

Abstract:

The document preparation facility is one of the most important functionalities in various types of information systems. Now that high-density laser printers are commonly provided and various kinds of jobs are effectively computerized, electronic and paper documents related to desktop publishing are easily composed by computers. Document preparation tools/systems (or formatters) that are currently utilized embed the text layout control data into the source text data. These traditional formatters are not always successful because the task of embedding layout control data into the source text data is very troublesome and difficult: such a framework lacks flexibility, adaptability and applicability. Our approach enables a layout-independent document preparation mechanism, because the original text data are separated from the layout control data; the layout structure information is specified externally by a format definition language. In this paper, we discuss the concept and framework of our document preparation facility, and also show a prototype system.

Index Terms:

desktop publishing; data preparation; page description languages; document handling; layout-independent document preparation mechanism; layout structure specification method; high-density laser printers; electronic documents; paper documents; desktop publishing; text formatters; text layout control data; source text data; flexibility; adaptability; applicability; format definition language; document preparation facility

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133 and desktop publishing	2

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IBM Technical Disclosure Bulletins

Refine Search:**Clear****Search History****Today's Date: 10/17/2000**

WEST**Generate Collection****Search Results - Record(s) 1 through 4 of 4 returned.**☐ 1. Document ID: US 6006236 A

L10: Entry 1 of 4

File: USPT

Dec 21, 1999

US-PAT-NO: 6006236

DOCUMENT-IDENTIFIER: US 6006236 A

TITLE: Virtual navigator that produces virtual links at run time for identifying links in an electronic file

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Young; Jeffrey E.	San Jose	CA	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Adobe Systems Incorporated	San Jose	CA	N/A	N/A	02

APPL-NO: 8/ 995313

DATE FILED: December 22, 1997

INT-CL: [6] G06F 17/30

US-CL-ISSUED: 707/103

US-CL-CURRENT: 707/103R

FIELD-OF-SEARCH: 707/1-5, 707/10, 707/100-104, 707/200-206, 345/356, 345/357, 345/134, 345/132, 395/200.33, 395/200.52, 364/131, 364/132, 364/221.9, 364/222, 364/228, 364/229, 364/139

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5877766</u>	March 1999	Bates et al.	345/357

ART-UNIT: 271

PRIMARY-EXAMINER: Ho; Ruay Lian

ATTY-AGENT-FIRM: Fish & Richardson P.C.

ABSTRACT:

A method and apparatus for identifying links in an electronic document provides an electronic file as a data structure having components and having base links that define the structural relationship between the components, traverses the data structure using the base links, and produces a virtual link between two components by recognizing a characteristic shared by the components. The virtual link is identified when needed at run-time. A function may be performed using the components as components are identified.

21 Claims, 7 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 2. Document ID: JP 11250107 A

L10: Entry 2 of 4

File: JPAB

Sep 17, 1999

PUB-NO: JP411250107A
DOCUMENT-IDENTIFIER: JP 11250107 A
TITLE: VIRTUAL NAVIGATION

PUBN-DATE: September 17, 1999

INVENTOR-INFORMATION:

NAME

YOUNG, JEFFREY E

COUNTRY

N/A

ASSIGNEE-INFORMATION:

NAME

ADOBE SYST INC

COUNTRY

N/A

APPL-NO: JP10363460

APPL-DATE: December 21, 1998

INT-CL (IPC): G06F 17/30; G06F 17/27; G06F 17/21

ABSTRACT:

PROBLEM TO BE SOLVED: To improve a method for identifying a link in an electronic document by traversing a data structure through the use of a base link and recognizing a characteristic shared by components so as to generate a virtual link between components within the data structure.

SOLUTION: An electronic document publishing system 101 uses a base link for identifying the correlation of all the components in a hierarchical structure. The system 101 searches a specific component within a data structure by using a virtual navigator 102. The system 101 gives the navigator 102 to a component of each type requiring to be discriminated, namely identified. The navigator 102 uses the base link of hierarchical data structure or a viral link given by some other virtual navigator and recognizes a common characteristic used in common by a pair of components to recognize a pair of the components.

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Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWC	Draw. Desc	Clip Img	Image
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☒ 3. Document ID: US 5963641 A

L10: Entry 3 of 4

File: DWPI

Oct 5, 1999

DERWENT-ACC-NO: 1999-618705
DERWENT-WEEK: 199953
COPYRIGHT 2000 DERWENT INFORMATION LTD

TITLE: Electronic document verifying system in electronic document publishing

INVENTOR: CRANDALL, R; MARCHESE, P G

PATENT-ASSIGNEE:

ASSIGNEE

MARKZWARE INC

CODE

MARKN

PRIORITY-DATA:

1995US-0526554

September 12, 1995

1997US-0977928

November 24, 1997

PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

US 5963641 A

October 5, 1999

N/A

007

H04L009/00

APPLICATION-DATA:

PUB-NO

APPL-DATE

APPL-NO

APPL-DESCRIPTOR

US 5963641A

September 12, 1995

1995US-0526554

Cont of

US 5963641A

November 24, 1997

1997US-0977928

N/A

INT-CL (IPC): G09C 3/00; H04L 9/00

ABSTRACTED-PUB-NO: US 5963641A

BASIC-ABSTRACT:

NOVELTY - Preferences are set beforehand for the font characteristics and for document graphic element formats. The font and graphic element formats are identified from the extracted document. The preset data and extracted data are compared and stored in memory of digital computer (101) based on which inconsistencies in the document are detected.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for electronic document verification method.

USE - In field of electronic document publishing. For examining verifying, correcting an approving electronically recorded documents prior to printing, transmission or recording.

ADVANTAGE - User is alerted for any printing, transmission or recording problem as inconsistencies in document is detected prior to printing. Substantial saving in time and resources is offered by providing a comprehensive set of features and performance in a single application.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the document verification apparatus.

Digital computer 101

ABSTRACTED-PUB-NO: US 5963641A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.2/2

DERWENT-CLASS: P85 T01

EPI-CODES: T01-J11A; T01-J11B;

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWOC	Draw Desc	Clip Img	Image
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DERWENT-ACC-NO: 1999-243520
DERWENT-WEEK: 199920
COPYRIGHT 2000 DERWENT INFORMATION LTD

TITLE: Electronic document publishing method in HTTP network environment

INVENTOR: SIDANA, A S

PATENT-ASSIGNEE:

ASSIGNEE

SILICON GRAPHICS INC

CODE

SILIN

PRIORITY-DATA:

1996US-0608111

February 28, 1996

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 5890170 A	March 30, 1999	N/A	022	G06T011/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	APPL-DESCRIPTOR
US 5890170A	February 28, 1996	1996US-0608111	N/A

INT-CL (IPC): G06T 11/00

ABSTRACTED-PUB-NO: US 5890170A

BASIC-ABSTRACT:

NOVELTY - Home page document template is generated. On detecting that a user dragged and dropped a displayed file icon onto a second displayed icon representing a publishing request, a link is automatically created to current document in template and the document is published.

DETAILED DESCRIPTION - Template generation includes encoding information in home page for accessing one file directory and using encoded information to generate hypertextual links to one referenced file in the designated file directory. The second icon is a drop pocket icon for effecting link to one document, icon representing a directory in which document to be published are stored, or icon representing a method for electronically publishing one document in a computer network environment. Prior to publication of document, it is detected that the user has clicked on a button on the display and a directory including the document to be published is displayed.

USE - For publication of document on the web by uninitiated user.

ADVANTAGE - Enables server to locate user's home page without requiring user to know the processing involved.

DESCRIPTION OF DRAWING(S) - The drawing shows the windows displayed during the software operation, before information is added to home page.

ABSTRACTED-PUB-NO: US 5890170A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.8/13

DERWENT-CLASS: T01

EPI-CODES: T01-H07C5E; T01-J11C1; T01-J12D;

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Clip Img	Image
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USPT	l31 and desktop publishing	7	<u>L34</u>
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Computer , Volume: 24 Issue: 6 , June 1991
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[\[Abstract\]](#) [\[PDF Full-Text\]](#) **JNL**

13 Classification and image recognition methods in desktop publishing system

Backmutsky, V.; Shenkman, A.

Electrical and Electronics Engineers in Israel, 1991. Proceedings., 17th Convention of 1991

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Visualization, 1990. Visualization '90., Proceedings of the First IEEE Conference on , 1990

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System Sciences, 1988. Vol.II. Software Track, Proceedings of the Twenty-First Annual Hawaii International Conference on , 1988

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Formal Methods and Human-Computer Interaction: II, IEE Colloquium on , 1988

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[\[Abstract\]](#) [\[PDF Full-Text\]](#) **CNF**

18 IEE Colloquium on 'Formal Methods and Human-Computer Interaction: II' (Digest No.82)

Formal Methods and Human-Computer Interaction: II, IEE Colloquium on , 1988

[\[Abstract\]](#) [\[PDF Full-Text\]](#) **CNF**

Status: Path 1 of [Dialog Information Services via Modem]

Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
Trying 3106900061...Open

DIALOG INFORMATION SERVICES

PLEASE LOGON:

***** HHHHHHHH SSSSSSSS?

Status: Signing onto Dialog

ENTER PASSWORD:

***** HHHHHHHH SSSSSSSS? *****

Welcome to DIALOG

Status: Connected

Dialog level 00.07.20D

Last logoff: 17oct00 11:56:08

Logon file405 17oct00 12:00:10

SYSTEM:HOME

Menu System II: D2 version 1.7.8 term=ASCII

*** DIALOG HOMEBASE(SM) Main Menu ***

Information:

1. Announcements (new files, reloads, etc.)
2. Database, Rates, & Command Descriptions
3. Help in Choosing Databases for Your Topic
4. Customer Services (telephone assistance, training, seminars, etc.)
5. Product Descriptions

Connections:

6. DIALOG(R) Document Delivery
7. Data Star(R)

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/H = Help

/L = Logoff

/NOMENU = Command Mode

Enter an option number to view information or to connect to an online service. Enter a BEGIN command plus a file number to search a database (e.g., B1 for ERIC).

?b patents, compsci

>>> 351 is unauthorized

>>> 352 is unauthorized

>>>2 of the specified files are not available

17oct00 12:00:39 User241522 Session D36.1

\$0.00 0.171 DialUnits FileHomeBase

\$0.00 Estimated cost FileHomeBase

\$0.02 TYMNET

\$0.02 Estimated cost this search

\$0.02 Estimated total session cost 0.171 DialUnits

SYSTEM:OS - DIALOG OneSearch

File 123:CLAIMS(R)/Current Legal Status 1980-2000/Oct 11

(c) 2000 IFI/CLAIMS

*File 123: Extension data has been enhanced - See HELP NEWS 123.

*** Reassignment data is current through Jul. 25, 2000 recordings.

File 340:CLAIMS(R)/US Patent 1950-00/Oct 10

(c) 2000 IFI/CLAIMS(r)

File 342:Derwent Patents Citation Indx 1978-00/200049

(c) 2000 Derwent Info Ltd

*File 342: Updates delayed. Please see HELP NEWS 342 for details.

File 344:Chinese Patents ABS Apr 1985-2000/Aug
(c) 2000 European Patent Office

File 345:Inpadoc/Fam.& Legal Stat 1968-2000/UD=200040
(c) 2000 EPO

File 347:JAPIO Oct 1976-2000/May(UPDATED 000915)
(c) 2000 JPO & JAPIO

File 348:European Patents 1978-2000/Oct W03
(c) 2000 European Patent Office

File 349:PCT Fulltext 1983-2000/UB=20001012, UT=20000928
(c) 2000 WIPO/MicroPat

***File 349: Phase 2 enhancements with current WIPO biblio data now online.**
See HELP NEWS 349 for more information.

File 353:APIPAT 1964-2000/Oct W2
(c) 2000 Elsevier Engineering Info., Inc.

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File 371:French Patents 1961-2000/BOPI 0038
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File 447:IMSWorld Patents International 2000/Sep
(c) 2000 IMSWorld Publ. Ltd.

File 652:US Patents Fulltext 1971-1979
(c) format only 2000 The Dialog Corp.

***File 652: Reassignment data current through 12/06/1999 recordings.**
Due to recent processing problems, the SORT command is not working.

File 653:US Pat.Fulltext 1980-1989
(c) format only 2000 The Dialog Corp.

***File 653: Reassignment data current through 12/06/1999 recordings.**
Due to recent processing problems, the SORT command is not working.

File 654:US Pat.Full. 1990-2000/Oct 10
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***File 654: Reassignment data current through 12/06/1999 recordings.**
Due to recent processing problems, the SORT command is not working.

File 670:LitAlert 1973-2000/UD=200041
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***File 670: LitAlert has been reloaded for Y2K compliance.**
See HELP NEWS 670 for details.

File 2:INSPEC 1969-2000/Oct W3
(c) 2000 Institution of Electrical Engineers

***File 2: There is no data missing. UDs were adjusted to**
reflect the current months data. Please see Help News2.

File 6:NTIS 1964-2000/Nov W1
Comp&distr 2000 NTIS, Intl Cpyrght All Right

***File 6: See HELP CODES6 for a short list of the Subject Heading Codes**
(SC=, SH=) used in NTIS.

File 8:Ei Compendex(R) 1970-2000/Sep W3
(c) 2000 Engineering Info. Inc.

File 34:SciSearch(R) Cited Ref Sci 1990-2000/Oct W2
(c) 2000 Inst for Sci Info

File 35:Dissertation Abstracts Online 1861-2000/Jul
(c) 2000 UMI

File 65:Inside Conferences 1993-2000/Oct W3
(c) 2000 BLDSC all rts. reserv.

File 77:Conference Papers Index 1973-2000/Jul
(c) 2000 Cambridge Sci Abs

File 92:IHS Intl.Stds.& Specs. 1999/Nov
(c) 1999 Information Handling Services

***File 92: Due to IP format changes the file will not update for**
several months.

File 94:JICST-EPlus 1985-2000/Jun W2
(c)2000 Japan Science and Tech Corp(JST)

File 99:Wilson Appl. Sci & Tech Abs 1983-2000/Sep
(c) 2000 The HW Wilson Co.

File 103:Energy SciTec 1974-2000/Sep B2
(c) 2000 Contains copyrighted material

***File 103: For updates please see Help News103.**
For access restrictions, see HELP RESTRICT.

File 108:Aerospace Database 1962-2000/Oct
(c) 2000 AIAA

File 144:Pascal 1975-2000/Oct W3
(c) 2000 INIST/CNRS

*File 144: This file is updating weekly now.

File 202:Information Science Abs. 1966-2000/Issue 6
(c) Information Today, Inc

File 233:Internet & Personal Comp. Abs. 1981-2000/Oct
(c) 2000 Info. Today Inc.

File 238:Abs. in New Tech & Eng. 1981-2000/Sep
(c) 2000 Reed-Elsevier (UK) Ltd.

File 239:Mathsci 1940-2000/Nov
(c) 2000 American Mathematical Society

File 275:Gale Group Computer DB(TM) 1983-2000/Oct 17
(c) 2000 The Gale Group

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info

File 647:CMP Computer Fulltext 1988-2000/Sep W4
(c) 2000 CMP

File 674:Computer News Fulltext 1989-2000/Sep W3
(c) 2000 IDG Communications

File 696:DIALOG Telecom. Newsletters 1995-2000/Oct 16
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Set Items Description
--- -----

?s computer (w) prepress

Processed 10 of 37 files ...

Processing

Completed processing all files

4817771 COMPUTER

5831 PREPRESS

S1 2 COMPUTER (W) PREPRESS

?t s1/full/1-2

1/9/1 (Item 1 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)

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02285524 SUPPLIER NUMBER: 54301662 (THIS IS THE FULL TEXT)

Digital Art Exchange. (appoints Rob Heywood project manager) (Company
Operations) (Brief Article)

Seybold Report on Publishing Systems, 28, 9, 2(1)

Jan 25, 1999

DOCUMENT TYPE: Brief Article ISSN: 0736-7260 LANGUAGE: English

RECORD TYPE: Fulltext

WORD COUNT: 53 LINE COUNT: 00008

TEXT:

Digital Art Exchange has appointed Rob Heywood project manager specializing in asset management. An independent contractor in **computer**, **prepress**, systems and networking, he is vendor certified regarding Inso's MediaBank, Heidelberg's DeltaBase and Imation's MediaManager database systems and has more than ten years' experience in electronic prepress and planning management.

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COMPANY NAMES: Digital Art Exchange Inc.--Officials and employees

GEOGRAPHIC CODES/NAMES: 1USA United States

DESCRIPTORS: Company executive

NAMED PERSONS: Heywood, Rob--Selection, appointment, resignation, etc.

EVENT CODES/NAMES: 540 Executive changes & profiles

PRODUCT/INDUSTRY NAMES: 3555531 (Prepress Proofing Systems)

SIC CODES: 3555 Printing trades machinery

NAICS CODES: 333293 Printing Machinery and Equipment Manufacturing

FILE SEGMENT: CD File 275

1/9/2 (Item 2 from file: 275)

01467858 SUPPLIER NUMBER: 11302585 (THIS IS THE FULL TEXT)
Scitex at Print '91: new products and a broader market reach.
Eliezer, Caren
Seybold Report on Publishing Systems, v21, n1, p3(10)
Sept 11, 1991
ISSN: 0736-7260 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 7290 LINE COUNT: 00565

TEXT:

LIKE ALL OF the color prepress vendors, Scitex has been striving to ride the fourth wave. It's a difficult challenge. To make money as a system supplier, the vendor must provide systems that offer substantially better performance and functionality than off-the-shelf desktop products, yet it must at the same time somehow keep in step with what is happening in the PC and Mac marketplace. In the color market, the vendor must also address the fact that the growth opportunity to most of the new color market entrants is not in proprietary workstations anymore; it has shifted to standard workstation platforms, where systems are made by merging off-the-shelf components with specialized input and output devices.

The traditional color prepress suppliers all recognize the dynamics of the current market, and each has taken steps to embrace the desktop market without alienating its installed base. Scitex has so far succeeded in walking this fine line, as its profits indicate. Its strategy contains numerous key points:

- * Base its workstations on as many off-the-shelf components as possible (such as Intel chips and the Intel RMX operating system);
- * Create families of workstations for specific applications. The families, such as the Assembler and Star stripping stations, offer the customer a range of products differentiated by features, price and performance;
- * Respond to the market demand for Mac-based systems by offering its own value-added Mac software sold directly or through the user association (Visionary);
- * Leverage its experience in high-end color in penetrating the emerging color markets by offering peripherals designed to work with PostScript (SmartTwo PS and Dolev PS);
- * Provide the customer base with the means to embrace desktop PostScript files (the VIP or PS Bridge PostScript RIPs); and
- * Lessen the educational barrier of graphic arts color by conducting courses and tutorials on **computer prepress** equipment and graphic arts techniques.

Since Drupa, the numbers of Scitex PostScript-based products and ones based on off-the-shelf technology clearly show that Scitex has noted the market demands for standard platforms and PostScript. The products introduced at Macworld and Print '91 reinforce that trend. Scitex now offers seven products based on off-the-shelf microprocessors and ten that support PostScript.

The new PosScript-related products include a Smart Scanner for the Mac, a PS/2-based stripping station, a new '486-based RIP for the Dolev PS, and IPSO a Mac-based (and later Sun as well) color system assembled by Scitex from third-party components and Scitex peripherals. (Coming next year is a large-format Dolev.)

With the addition, Scitex is also responding to a growing demand for products that are easier for apprentices to learn. User interfaces of previous Scitex systems emulated traditional production processes and methods. In this respect, they were like other high-end prepress systems. In 1986, Scitex introduced the Smart Scanner, a high-quality, CCD-based color scanner that was far easier to operate than drum scanners available at that time (and for the most part even today). The Smart-Scanner was the first easy-to-use quality color scanner, foreshadowing the current generation of color scanners driven by graphical software.

At the same time, Scitex introduced the Whisper (Intel-based) family, which enhanced the user interface of its color manipulation systems. The Whisper brought such features as hierarchical file structures and menus,

but the intended operator was still a production person.

With the Blaze, introduced at Print '91, Scitex is targeting a creative audience. The Blaze's user interface reflects the intended audience; it is also a response to desktop products such as Photoshop and ColorStudio, or successful creative systems such as the Barco Creator.

Its new products give Scitex's product line a new appearance. Yet, with half of its \$351.5 million in revenues coming from its current base of more than 1,300 customers, it is indeed prudent to offer upgrade paths as well as new work-stations and devices.

For the installed Whisper base, Scitex announced upgrade kits that will offer them the same '486 processor as in the new Blaze, as well as a new release of Star, new communications options and the Unified File Structure--a major software enhancement.

In this article, we also report on the ColorBox, a new implementation of Scitex's color computer that Scitex has said it is willing to license to other firms. Scitex is also making use of the ColorBox in Trans/4, a new color-matching module for the Iris proofer.

Blaze: retouching, color correction

The Blaze is a real-time retouching and color correction workstation that is oriented more toward creative artists than is the production-oriented Rightouch. It incorporates all of the retouching functionality of the Rightouch and Prisma CT, but Blaze was designed so that users can create special effects quickly and easily.

The Blaze is part of the Whisper family of workstations, which are based on Intel microprocessors. The Blaze is based on an Intel 80486 running at 33 MHz. This same processor is being offered as an upgrade for other Whisper machines; however, the Blaze's footprint is smaller than those of the current Whisper computers.

The Blaze also includes a dedicated graphics processors designed specifically for image manipulation. The base configuration has 192 MB of RAM, but that may be expanded to 320 MB. The monitor's resolution is 1,024X768 pixels.

Because the pictures are all loaded in memory, performance is exceptional. There are no more waits for updates or executes due to postprocessing. If you are annoyed at the wait for the switch between maximum detail (1:1 pixel display) and full picture on most Scitex stations, this one's for you. The Blaze provides a near-instantaneous response. Such speed is especially useful for creative retouchers whose output is to be transparencies, because their file sizes are inherently much larger than for separation output.

A key feature of the Blaze is its pressure-sensitive pen and tablet, making it the first Scitex workstation to have this option. The artistically inclined have always had to adjust themselves from the versatility of the pencil or other drawing instrument to the fixed application of the mouse. Here, the artist will feel more comfortable. The harder you press, the thicker and heavier the application of color. The pen can be swapped for a cordless mouse (and vice versa) simply by picking the other up and placing it on the tablet.

More basic parts of the user interface have also been improved. While sticking with the standard Scitex Whisper conventions, Blaze's work process is more intuitive. For example, a user who is creating a vignette (degrade or blend) can add or move color points simply by clicking down or picking them up and moving them. The vignette creation command sequence need not be invoked with every change.

Borrowing from the PC and Mac, a number of keyboard shortcuts have also been added. In addition to the numerical controls Scitex users already have, all settings may be selected with sliders. There is also much more use of icons.

Of course, part of the intention is the same as that of the Smart Scanner: making a machine easier to learn, and building in support for defaults and preprogrammed settings and formats, results in a more productive workstation operated by potentially less skilled (and less well paid) operators. But with the Blaze, Scitex also intends to reach out to a new audience: creative artists. Such artists will need some production skills to operate Blaze, but substantially less than to run a Rightouch or Prisma CT.

This conscious attempt to modify its product to reach a new audience

is itself a big change for Scitex, which historically has mimicked production methods in all of its workstations.

Blaze functionality includes both retouch and color correction tools. Twelve brush shapes (including ribbon brushes), flow or strength controls, size and transparency settings, and erase and clone brushes are available. What is different from older Scitex machines is how these brushes are applied. Color corrections, gradations and other global functions may be applied locally by using a brush.

Blaze also adds the capability to work in RGB or hue/lightness/saturation (HLS) color spaces, as well as CMYK. The operator may change the color space at any time. This feature is quite useful because sometimes color changes, such as brightening the reds, are more intuitively made in spaces other than CMYK.

Blaze is a separate workstation, but all Whisper edit workstations running version 5.0 can be upgraded to the Blaze. The workstation by itself is priced at less than \$ 270,000. Upgrade kits for the Prisma, Rightouch and Assembler Plus are planned for release in the first quarter of 1992 and have not been priced yet.

Unveiled at the Scitex Users' Group meeting and formally introduced at Print '91, Blaze is currently undergoing beta testing in both Europe and the U.S. The first European beta site is Colortec/Wace in Paris, whose application is transparency output of second-generation originals. Commercial release of the workstation is expected to occur in the fourth quarter of this year.

Whisper '486 upgrade

For vendors today, a clear advantage of using off-the-shelf processors is being able to offer the customer base frequent hardware improvements. The latest Whisper upgrade is the third since Scitex introduced its Intel workstations at Drupa in 1986.

The new Whisper processor upgrades the motherboard of current Whisper computers to the Intel 80486 chip purely as a performance enhancement. The '486 chip runs at 33 MHz and makes better use of the math coprocessor and cache. There is an average gain of 20% in throughput. However, certain functions are sped up much more than others. For example, color corrections average 2.8 times faster, and a line work rotation averages 4.1 times faster.

An upgrade board set is available for any '386-based MicroAssembler, Assembler Plus, Rightouch or Prisma. Upgrade pricing is set at \$15,000 from the current '386.

Unified File Structure

On the software side, Scitex is planning a facility to allow files on any removable media (removable hard disks or optical discs) connected to any Scitex workstation to be accessed from any other workstation on the Scitex network. Called Unified File System (UFS), the new facility will be released early in 1992. UFS will recognize any Imager, Pixet or CIPC (Fyrox, Hewlett-Packard computers), any Whisper based workstation (Intel). Star workstations (based on IBM PS/2s) and Macintoshes may be included as well. Scitex plans to integrate PCs in general soon thereafter. Version 5 software will be required.

The value in UFS is that all systems will be able to access the same files on the removable media. An optical disc, for example, may be moved to any workstation and used as if it were a system disc (albeit a slow one), not just as an archival medium. The optical discs may be switched among workstations without any filters or conversions (assuming the data is in Scitex format).

The exceptions are the Fyrox-based systems. Files that originate on the Fyrox can still be accessed and worked with on any other Scitex systems after going through a conversion process. A Fyrox system will still have to copy UFS files that originate on other Scitex systems to its system disk before working on them, with the format conversion performed on the fly during the copy operation.

In a networked environment, a Prisma or Rightouch can be used to retouch files that will be stripped on a PS/2-based Star without having to transfer the files. Perhaps in a future release, this could mean that the image that was color corrected on the Whisper-based Prisma could be stripped into position on a Star (PS/2), along with illustrations from ColorFill (Mac) using a page created on Visionary (Mac)--all without a

single file conversion, or even moving the files.

UFS will be especially useful with the new fiber-optic network Scitex introduced this summer at ANPA. Fiber optics provide the bandwidth and speed that make it possible to transfer 60-MB images and 350-MB pages in productive periods of time (seconds or minutes, rather than minutes or hours). We believe UFS will help Scitex customers move toward a unified, and productive, network of diverse workstations.

It is worth noting that the FDDI transfer times quoted by Scitex previously showed only an average transfer speed of 460 kilobytes per second. Scitex has corrected this by stating that the bandwidth is 100 megabits per second, with an average of 800 kilobytes per second and peak transfer rates of 920 kilobytes.

It should be noted, however, that this speed is limited by the disk. In other words, if the disk were faster, the transfer rate would also be faster. Up to 12 pairs of stations can communicate before any degradation is apparent, and the speed is expected to increase soon to be equivalent to the speed of the bus. Up to 500 stations can be connected.

Optical disc library

Using the Hewlett-Packard C1710A, the optical disc jukebox holds up to 32 optical discs of 600 MB (formatted) each, for a total storage capacity of roughly 20 gigabytes. It includes an autochanger, two 5 1/4" rewritable optical drives and a mailslot for exchanging cartridges.

Connecting to any Whisper or MicroWhisper, and to any Fyrox through a SCSI connection, it is to be used as a local storage device. Files are copied to the Whisper's disk and then to the optical disc. This method was used to optimize transfer times over the network when using optical drives, which have a slower access time. When a Scitex Manager is present in a Whisper-based system (see below), the jukebox can act as a file server and an unattended archival station. As with the rest of Scitex equipment, copy instructions can be queued.

Because a SCSI interface is needed in a Fyrox configuration, it is highly recommended that it be sold with a MicroWhisper. This separate processor will speed the transfer times tremendously over the Fyrox computers and it can act as a separate processing station for execution when it is not otherwise busy.

The optical disc subsystem was shown at the users' group meeting and Print '91. Release is estimated for the end of the first quarter of 1992 because it requires the UFS described above. Support for the Macintosh will be available once the UFS supports it. Pricing has not yet been set.

ColorBox and Trans/4

At the heart of any color prepress system is the "color computer," the system that computers the color conversions and does the halftone screening. On its old Fyrox systems, Scitex had what it called its convolution hardware and software, a board set and software specifically designed for compute-intensive tasks, such as rotating. Several years ago, Scitex enhanced this subsystem when it moved onto the Intel hardware. Its color computer became known as the HSP (High-Speed Processor).

With its new ColorBox technology, announced at ANPA, Scitex has further enhanced this subsystem, with special attention paid to color conversion, color accuracy and quality for input scans, proofing and output of film. Trans/4 is the first product to implement ColorBox. In addition, Scitex announced that for the first time it is planning to license its color technology to other vendors.

We first reported on Trans/4 in June (see Vol. 20, No. 19, p. 30). During our visit to Israel, we learned more about its underlying technology.

ColorBox. The hardware implementation of the ColorBox technology consists of three modules:

The color processor performs real-time conversions from any 3- or 4-dimensional color space to any other 3- or 4-dimensional color space. The processor includes gradation and linearization tables, a 4-by-4 matrix and a 4-dimensional lookup table. Some of the possible transformations are CMYK-to-CMYK, RGB-to-CMYK or vice versa, color corrections and undercolor removal or gray-component replacement.

True color correction is based upon the interaction of changes in one color with changes in another. To be done correctly, it requires matrices of at least the size Scitex is using. Scitex's design goal in the color

processor was to make the product suitable for many applications. With the growing demand for color transformations, we believe that was a wise decision.

The spatial processor performs real-time resolution adjustments using convolutions. This processor is used when a high-resolution file has to be output on a fixed-resolution device and to achieve the highest-quality merging of continuous-tone and line art files.

The screen processor is the Scitex raster image processor that performs the halftone screening of continuous-tone images. It accommodates any dot shape, screen angle and screen ruling.

The ColorBox's design is modular, such that any module or pair of modules may be used together.

Trans/4. The first product based on the ColorBox technology, Trans/4, uses the first two modules to achieve high-quality proofs on the Iris ink-jet proofers. These proofs are color-matched to other proofing methods.

The spatial processor is used in Trans/4 to match the file resolution to the Iris proofer resolution. (At a maximum of 300 dpi, the proofer's resolution is typically much lower than that of the source file.) The net result is that line art and text look sharper and do not suffer from the "jaggies" (see sample).

The color processor is used to match the Iris colors to those of a selected press sheet or other proofing method. Scitex uses a process whereby a series of 500 color patches are printed on the press, ink and paper combination to which you wish to calibrate. These patches are then measured with a colorimeter in CIE XYZ color space to ensure that each color is uniquely defined. The measurements are automatically transferred to the Trans/4 processor, which calculates the calibration values so that the Iris proof matches the selected output. Scitex claims that the time to recalibrate is only 1 1/2 hours.

With Trans/4, Scitex supplies a series of standard calibrations for SWOP, gravure and European standards, and it will continue to add to the list. The applications for Trans/4 that immediately come to mind are newspapers, magazines and catalogs--publications in which the same press, paper and ink combinations will be used many times.

With the Trans/4 hardware and software working as a front end to the Iris proofer, Scitex has times the proof processing and printing time to be 10 minutes for either A4- or A3-size pages. The cost per proof is less than \$5. One of the beta sites is so pleased that it has turned off its Cromalin machine.

Licensing possibilities. It is significant that Scitex, which is synonymous with color expertise, is planning to license ColorBox technology to other vendors looking for specialized color technology for input and output devices. As PostScript Level 2 becomes more prevalent, and the market shifts toward the use of device-independent color spaces, color transformation and calibration technology will become critical to providing inexperienced users with reasonable color matching. Scitex has always done a good job of providing color matching for color professionals, and Trans/4 is an impressive reinforcement of that reputation.

But the high-end color market is not the high-growth market it once was. Entering the licensing business with a product that could have broad appeal should help Scitex reach new markets without diluting the company's strength and focus.

PostScript Products

New RIP for Dolev

The Dolev is relatively inexpensive compared to larger-format recorders. The initial PostScript model has an Adobe software interpreter running on an 80386 PC that rasterizes PostScript files into Scitex line art and continuous-tone files, which are then screened in hardware.

At Print '91, Scitex introduced version 2 of the Dolev PS. Version 2 features a new interpreter, also made by Adobe, that runs on an IBM PS/2 Model 95, which incorporates a '486 processor running at 33 MHz. We were not able to conduct our own tests, but Scitex claims that, in most cases, the new interpreter will cut RIP times (PostScript-to-Scitex interpretation) in half. Communication, screening and exposure times will remain the same.

Existing Dolev PS units may be upgraded to a '486 version, or the '486 can be added to work in a dual-RIP configuration. In a queued dual-RIP

environment combining a '386 and '486 (previously announced and now released), the performance improvement is reported to be threefold over a single-'386 machine.

In order to handle different setups, the '486's disk can be partitioned into as many as eight servers, each for a certain set of parameters--page size, resolution, etc. As the operator readies a job for output, the job is sent to the appropriate server, and the rest is handled automatically.

Version 2 supports both PLI and OptiStorage optical discs, the Adobe font downloader 4.0, PageMarker 4.0 and the "set page parameters" command in PostScript. The Dolev will now read this command from the PostScript file, eliminating the need to separately define LW (line work) and CT (continuous-tone) page sizes for output.

In addition, this latter function is a flag setting that allows the operator to send a PostScript file generated by any application as a color separation file. Automatic Black Overprint compensates for a PostScript deficiency whereby layers underneath the black are automatically knocked out. Dolev software will process these layers as overprints if the top layer is 100% black.

Lastly, RGB TIFF files will be converted to CMYK instead of CMY, making use of undercolor removal in the process.

Large-format Dolev imagesetter

Scitex has developed a new version of the Dolev internal drum imagesetter, which will be released in the second half of 1992. Called the Dolev 800, it is similar to the original Dolev machine in characteristics such as its light source, resolution, roll-fed media supply and pin registration system. But where the original Dolev's image area is 14"x19 1/2", the Dolev 800 handles 32"x44" sizes, which is a larger imaging area than is used by any other PostScript imagesetter we know of except the new 40"x50" machine from Optronics.

The system uses a stationary helium-neon laser light source and a newly patented Pentha prism traveling down the center of the drum on a lead screw to record at resolutions of 1,624 and 2,540 dpi (60 and 100 cm per inch). The Pentha prism, used instead of a mirror, minimizes the dispersion of light as it is deflected to the phot material. Imaging takes place within an area covering a 270-degree arc around the inside of the drum. The material, automatically fed into the drum, is held in place by means of a vacuum.

The 800 is being specified for halftone screens up to 175 lines per inch. It will generate Scitex's standard dot shapes, including the composite dot that changes shape in accord with the size.

A new feature for the Dolev is support for three different film cassettes. It automatically detects which cassette to use, given the image size to be plotted. An online processor will be available with the machine.

The Dolev 800 isn't being shown at Print '91, although Scitex is talking about it with visitors to the booth.

Smart Scanner PS

In early August, at Color Connections in Boston, Scitex introduced the Smart Scanner PS. The Smart Scanner was released in 1986 as the first CCD scanner aimed at reducing the operator's required skill level to get high-quality scans. For those who know the SmarTwo, which only handles small transparencies. Scitex is targeting a 40-50% penetration rate of the Smart Scanner into Scitex installations; it presently has more than 500 SmarTwos and Smart Scanners installed worldwide.

The Smart Scanner handles both transparent and reflective material up to 8"x10", or A4 in size. It supports gang scanning of 35mm transparencies.

Both the Smart Scanner and the SmarTwo can scan either RGB or CMYK at 256 gray levels/colors into EPS, TIFF, DCS, PICT2, PSImage and Handshake CT formats.

Mac interface. Last December in Europe, and this spring in the U.S., Scitex announced a Macintosh interface for the SmarTwo. We noted at its introduction our favorable impression of the product, which connects the scanner to a Macintosh II through a GPID interface board and scanning software. (See Vol. 20, No. 8, pp. 13-14, for details.) Scitex began shipping the SmarTwo PS in the first quarter of this year.

Scitex has now introduced the Mac interface for the larger Smart Scanner. The software and card are roughly the same as with the other

scanner, except that the Smart Scanner software accommodates the larger sizes and alternative formats that the Smart Scanner handles. As an option, the SmartTwo PS and Smart Scanner PS scanners may be hooked to a Mac II and a Scitex workstation simultaneously.

The SmartTwo PS is priced at about \$70,000. The just-announced Smart Scanner PS is priced at \$95,000 and is available immediately.

The Smart Scanner PS and SmartTwo PS both make use of the color-based detail enhancement, or unsharp masking, that Scitex pioneered. In an application tips brochure, an example is given to how it can be used. A user who wants to show off jewelry that is on a model can create a color-based mask during prescan setup that will sharpen everything except the skin, which would otherwise look rough and pitted. You can preview how the scan will come out on the SoftProof monitor. Other sharpness parameters that can be set are for luminance and grain.

Version 2 software. Scitex has also upgraded its scanner software to version 2, adding several features, including interactive gradation and unsharp masking parameters. Both the color conversion and the sharpening are done on the fly using the special-purpose color computer residing within the scanner.

Color tables created on Scitex Whisper-based stations will be transferrable to the Mac-driven scanners. This software also adds the ability to do an interactive rotation during the prescan phase and boasts an auto-correct feature for over- and under-exposure. A plug-in module for running the scanner from within Photoshop is available.

Mixing worlds. A different, but still very interesting, application is using the composite scan feature of a Whisper-driven Smart Scanner in combination with a VIP RIP (PS Bridge). In this combination, a PostScript file may be used as a mechanical for scanning into the layout and for creating the final line-work and text files via the PS Bridge.

As with scanning from Whisper-created layouts, its purpose is to boost productivity by eliminating the need for preplanning (prescan measurement and setup): the scans are automatically given placeholders at the proper place on the page. The difference is that with PS Bridge, the layouts are created in desktop page makeup programs, such as Quark Xpress.

In the current release, both the PostScript file and a paper proof are required. Once the paper mechanical and the rasterized PostScript file are received at the scanning station, the page size is keyed, the mechanical is taped down on the tablet and the four corners are entered to calibrate for its being off center and for laser proof size distortions. The full area of the scan is marked off from the tablet and is shown on the preview, where it can be adjusted if necessary. With the two-point positioning method (pick two distinct points on the picture and mark them on both the mechanical and the preview), the scanner then sets up automatically for rotation, position and scale, and then completes the scan.

The new part is that the operator can then assign the picture to the shape that will act as its window or its cropping shape. Until now, this feature could only be used with rectangular images. Furthermore, multiple CT images scanned into position this way do not require postprocessing; a Mac page, rasterized with PS Bridge and combined with the scanned images, requires no postprocessing at all before being sent to the output device.

In a future release, a paper mechanical won't be necessary either. Scitex plans to enable the operator to work solely from the electronic mechanical on the preview monitor.

Strong contender. The Mac-driven Smart Scanner PS looks very competitive against the Optronics ColorGetter and the Screen ISC 2010, the two closest machines in this new market for quality scanners driven by a desktop computer.

Against the ColorGetter, the Smart Scanner is a little smaller and more expensive, but it has a much better user interface; it virtually eliminates setup time; it offers interactive rotation and unsharp masking; and, in general, it automates more of the scanning process for the user than the Color-Getter.

There is little comparison with the Screen unit, in which the user interface consists of potentiometers (pots, for short)-- dials with which the user makes color corrections, scaling and rotations by the numbers. There is no preview.

Quality is not likely to be a distinguishing characteristic among these devices; they are all high-quality machines.

Star/Star PS stripping station

Star/Star PS is a stripping workstation running on an IBM PS/2. Begun two years ago as an experiment to see what could be productively done on a standard platform, it has evolved into a combination of the MicroAssembler and the VIP RIP.

Running under Unix on the IBM PS/2 Model 80 ('386) or 95 ('486 in '92), Star looks like a close cousin of the MicroAssembler. It has all the standard stripping features except density masking, which it lost due to the lack of special-purpose hardware to support it. Peripheral support is limited to mag tape and optical discs, though it will soon have Handshake. Network support is via Ethernet, as for its Intel-based cousins. The productivity of the Star has been measured by Scitex to be 75-80% of the Micro Assembler running on the Micro Whisper, which is priced at \$ 120,000 for the '386 version and \$135,000 for the '486.

The Star PS is an interesting option for the Star. It adds the VIP/2 PostScript RIP so that PostScript files may be brought in as line art. The continuous-tone files corrected on a Whisper or received directly from the SmartTwo or Smart Scanner workstation are then stripped into position, and the completed page is output on the Dolev PS. Scitex is calling this process "RIP and strip." The Star PS is priced at \$85,000 and is available immediately.

A further development that is still being finished is a Star/Dolev combination whereby the RIP on the Star PS is configured in place of the Dolev's interpreter. Since the Star is written in Unix, these functions can be performed in the background. Scitex has not announced pricing or a release date yet.

When would a customer be better served by a Star and when by a MicroAssembler? Scitex answers this question by looking at the productivity and volume requirements. Based on the assumption that the labor cost to run the machine is four times the equipment cost, if the user is running one shift of strippers, then the Star is the more efficient choice. If two shifts or more are present, the MicroAssembler's 20% functionality and productivity improvement pay for themselves very quickly. With these kinds of numbers, it is easy to see that the Star is an entry-level machine that is flexible for growth in its ability to be configured with either desktop or other Scitex pieces.

IPSO: midrange PostScript system

IPSO (Integrated PostScript Solution) represents not only a product--or rather configuration--announcement, but also a conceptual change in the way Scitex products are positioned or at least viewed in the market place. The first product from the Scitex Entry Systems Division (a marketing organization), IPSO-1 merges SCitex peripherals such as the SmartTwo PS and the Dolev PS with off-the-shelf Macs, LocalTalk or EtherTalk networking, Sharp and Xerox scanners, optical discs, and Apple and QMS printers to form a complete midrange color system (see illustration).

IPSO is a system integrator's solution made up of standard platforms and Scitex peripherals. It is the first Scitex system that is not based on Scitex software, although it does make use of ColorFill and the APR (Automatic Picture Replacement) software in the SmartTwo and Dolev.

What Scitex has done is write the glue that brings the system together as a whole. Utilities are bundled into a Designer's Toolkit to help the production workflow. They include file translation, a modern and communications package, and software to control the Sharp scanner so that it conforms to the APR image format.

This is a new twist: Scitex has only recently (in Cornerstone and ColorFill) promoted and then taken responsibility for non-Scitex hardware or software. In IPSO, it has tested and studied the third-party components, not only from a support standpoint but also to analyze productivity. Productivity numbers and workflow suggestions are available.

The IPSO-1 configuration is the first in what will be many. The next will probably include the Unda Image station as an option. The Smart Scanner can also be added in or swapped for the SmartTwo.

Also planned for the future are the Iris SmartJet, a faster networking scheme, and a series of color transformations based on the ColorBox. Perhaps we will see add-in boards as well as add-in software.

IPSO configurations will be marked in Europe primarily by a VAR channel under development. They will be sold direct in the U.S. Pricing for each configuration will be in the "under \$300,000" category. At a press conference in the UK, Scitex announced that IPSO-1 would be available for 130,000 (\$218,000). Its first VAR in the UK is the Last Word, in London. The product's release is expected in the fourth quarter of this year.

Communications and remote proofing

Scitex has recently put a lot of effort into communications, not only for pure image transfer but also for the application of remote proofing. Direct Digital, a customer in Kansas City, has been using the Iris 4012 in a remote proofing application for Gander Mountain, a catalog customer in Wisconsin.

Visionary pages are made up in Wisconsin and transmitted to Direct Digital through a satellite connection. Once the pages are complete, they are transmitted back to the Iris. Up to 32 pages have been transferred in one day, though the average load is ten. Scitex expects that an annotation capability will be available with a fully bidirectional interface in three months. This application could also support the Iris 3024 and 3047 printers.

Compression has been implemented in a new way to reduce transmission time. As the file is received, it is simultaneously decompressed such that only the last block need be decompressed once the communication is completed. Scitex claims this method makes communication 6-12 times faster. This is the basis for the remote proofing application, as Scitex plans to take advantage of ISDN as it becomes more widely available (meaning in Europe first). (*)

Users' Group Announcements

Visionary, Gateway changes

As we reported in June, Scitex has repackaged the Visionary and Gateway offerings following its renegotiated contract with Quark (see Vol. 20, No. 19, p. 33). Visionary/Q will be available as a Quark Xtension around October 15, after the release of Quark Xpress 3.1.

The next version of Visionary/Q (3.2) is scheduled to be released in the first half of next year. Scitex promises better proofing and networking; tiling; measuring tools; and modem, color link and degrade enhancements. In addition, it will load faster, increase polygon points to 500 and put back features it lost in the conversion to a Quark Xtension. These features (the loss of which was not mentioned in the initial announcement) include the annotation layer, grid locking, recognition of master pages and a Visionary proofing driver.

The VProof software PostScript RIP will be priced at \$1,500. Visionary/Q is priced at \$750 and unfortunately still will require a dongle. Upgrades will be priced at \$450.

Visionary/A. A new product, called Visionary/A for Page-Maker, was announced. Speaking at the Visionary subcommittee meeting, Aldus vice president Larry Spelhaug described what seems like a new alliance with Scitex.

Visionary/A won't initially have all the bells and whistles of the current Visionary. It will include the grid feature and also a new multiple-point degrade (also called a vignette). Working with either radial or linear vignettes, the file will automatically come over to Scitex as a continuous tone in Scitex CT format instead of as a Scitex line-work file. This eliminates a banding problem caused by the limit of 256 colors in Scitex line-work files.

A new version of PageMaker will be required, which will be shown at the Seybold Computer Publishing Conference in October. Visionary/A will be available in December; no price has been set yet.

An extension for Aldus FreeHand will also be available in the same time frame. No new release requirement was mentioned. This extension will also have the multiple-point degrade option described above. No price has been set yet.

Gateway repackaged. The Scitex Universal Gateway was also repackaged, and the Gateway Plus was announced at the Users' Group meeting. The Universal Gateway now consists of a Mac IIfx, a 19" monitor, the VIP Adobe interpreter, the Gateway communication tools and a GPIB interface to Scitex. The Gateway Plus includes the above plus the Visionary/Q Xtension (not including Xpress itself), the Mitsubishi G650 proofer, a bus extender

cable, 188 Bitstream fonts, and an enhancement to a text RIP called Texta. The new version runs on the Whisper side instead of the Mac as a performance improvement, and it converts Type 1 fonts to Scitex DFO (Definitive Font Outline) format before rasterizing them to a Scitex line-work file. This is a significant change in that Visionary now handles Adobe fonts. The Gateways are available now.

The new version of VIP should be released in October. It will handle bigger files and be System 7 compatible and 32-bit clean.

Scitex Manager

An interesting new product is the Manager, the first implementation of what will become a full tracking, storage and information manager. Electronic job tickets and workflow management are part of this vision.

The foundation for this goal is to be able to know where every file resides and be able to control its location. To this end, its first release will cover file and storage management. Running on an IBM Model 95 under the AIX operating system, it will work over a local area network, and will first connect to Whisper and Fyrox workstations. Release 2 will add Macintosh support.

Information about every file, page or job is maintained in the database, whether on- or off-line. The data includes job and page identification, status, deadlines, job parameters, file sizes and types. Master customer and job records are maintained according to their IDs. As any page or page element enters the system, it can be associated with the job or customer information already resident. User-defined attributes may be created with self-styled status categories. Categories could also be set up to define the content of the image, as you might want to do in a catalog environment.

Every time a file is created, mounted, copied, deleted, moved, renamed or changed anywhere in the Whisper configuration, the database is updated automatically. A significant feature is the creation of a displayable thumbnail for each CT file created or modified. This thumbnail is stored in the database itself so that searches will be able to see any CT that was ever brought into the system since the Manager was implemented.

Searches and sorts on jobs, pages or files, including wildcard searches, can be performed across the entire network and database. These query operations can be performed from any workstation, not just the Manager PC. Only the Manager PC, however, can also perform file management operations across the network to other workstations. For example, it can initiate mount, move or copy functions to workstations or to the archival station, such as the Optical Disc Library. Thirty-two predefined reports can also be run and printed.

Support for Fyrox stations is limited to tracking file operations on tape and optical peripherals. The Manager can also query what is on the Fyrox disks, but it cannot execute remote commands. This is done so as not to burden the already slower disk of the Fyrox systems.

Multiple-site support with multiple Managers is expected in a later release.

The Manager, which Scitex does not plan to show at Print, is expected to go into beta testing this fall. It will require the Unified File Structure feature described above, which will be in release 5 software for Whisper. Commercial availability for the Manager is expected by the end of the first quarter of 1992.

Conclusion

Scitex is undergoing a dramatic change in its approach to the market. Not only is it embracing PostScript, it has also, with the new introductions, extended its produce line horizontally to reach an audience broader than just color production. The company is poised for growth in the midrange market and it is flush with cash; we wouldn't be surprised to see it move in other directions as well.

(*) ISDN (Integrated Services Digital Network) is a phone system that accommodates voice and data channels over the same phone lines and switching gear, offered by the phone company. You pay for time and bandwidth. It runs on both copper and fiber-optic cable. This is in contrast with FDDI, which is a protocol for networking computers in fiber-optic cable. It has nothing to do with voice.

CAPTIONS: Scitex workstations. (table); IPSO 1 configuration. (chart)

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SPECIAL FEATURES: illustration; table; chart
COMPANY NAMES: Scitex Corporation Ltd.--Product introduction
DESCRIPTORS: Product Introduction; Image Processing; Prepress; Scanner;
Typesetting System; Color Separation
SIC CODES: 2791 Typesetting; 3571 Electronic computers; 3577 Computer
peripheral equipment, not elsewhere classified
TRADE NAMES: Scitex Blaze (Workstation)--Product introduction; Scitex
Colorbox (Image processing equipment)--Product introduction; Scitex
Trans/4 (Image processing equipment)--Product introduction; Scitex Smart
Scanner PS (Scanning device)--Product introduction

FILE SEGMENT: CD File 275

?s server (w) computer

Processed 30 of 37 files ...

Processing

Completed processing all files

368835 SERVER

4817771 COMPUTER

S2 7191 SERVER (W) COMPUTER

?s s2 and computer (w) prepress (w) software

7191 S2

4817771 COMPUTER

5831 PREPRESS

2008556 SOFTWARE

0 COMPUTER(W) PREPRESS(W) SOFTWARE

S3 0 S2 AND COMPUTER (W) PREPRESS (W) SOFTWARE

?s s2 and prepress (w) software

7191 S2

5831 PREPRESS

2008556 SOFTWARE

86 PREPRESS(W) SOFTWARE

S4 0 S2 AND PREPRESS (W) SOFTWARE

?s desktop (w) publish?

Processed 30 of 37 files ...

Processing

Completed processing all files

217506 DESKTOP

4352842 PUBLISH?

S5 29124 DESKTOP (W) PUBLISH?

?s s5 and print (w) publish?

29124 S5

325791 PRINT

4352842 PUBLISH?

723 PRINT(W) PUBLISH?

S6 92 S5 AND PRINT (W) PUBLISH?

?s s6 and electronic (w) files

Processed 30 of 37 files ...

Completed processing all files

92 S6

2993252 ELECTRONIC

291180 FILES

1032 ELECTRONIC(W) FILES

S7 2 S6 AND ELECTRONIC (W) FILES

?t s7/full/1-2

7/9/1 (Item 1 from file: 275)

DIALOG(R) File 275:Gale Group Computer DB(TM)

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02436893 SUPPLIER NUMBER: 65069652 (THIS IS THE FULL TEXT)

Desktop publishing.(Software Review)(Evaluation)

GLINERT, SUSAN

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ABSTRACT: Adobe's high-end InDesign 1.5 DTP package earns a slightly higher rating than its arch-rival, Quark Inc's QuarkXPress 4.1. InDesign offers complex page assembly and a vast feature set and is Internet-aware. QuarkXpress is designed for layout specialists and lacks wizards or customizable palettes; its strengths are in color management and typographic control. The veteran Adobe PageMaker 6.5 Plus, repositioned as a midrange product, is sophisticated and powerful. It does not use frame-based layout but has tabbed palettes for creating and editing specific functions. Corel's Ventura 8 Publisher is part of a suite that includes WordPerfect 8, Photo-Paint 8 Database Publisher and a huge collection of fonts, templates and clip art. It has good drawing tools and typography. Corel Print Office 2000 is a \$99 package that uses the same template model as Microsoft Publisher but is not as easy to use. Microsoft Publisher 2000 level publishing takes templates to extremes with its wizard interface, which is relatively inflexible.

TEXT:

Six of the latest document tools for everyone from beginners to professionals

Desktop publishing (DTP) has revolutionized the printing industry and changed the way businesses handle printed material. Thanks to the latest DTP software, even the smallest home-based operation can easily produce its own letterhead, brochures, newsletters, or marketing flyers without dealing with commercial printing establishments.

Today's crop of DTP programs ranges from template-based tools to professional applications. To choose a product, you should decide first why you'll need it--small brochures, a few business cards, glossy four-color advertisements, or technical manuals. Then assess your budget and your designer's skill, even if it's your own.

We've sampled six DTP packages in a variety of price and power categories. We tested each on a 450MHz Pentium II desktop with 386MB of RAM, constructing a four-page newsletter and a long, multipage document and printing them to both a Lexmark Optra R+ monochrome laser and Epson Stylus Color 3000 color ink-jet printer. We also tried the Web output of programs that offered it.

The lower-priced programs here--Corel Print Office and Microsoft Publisher --are aimed at novices. They supply templates and clip art, and walk you through the process of adding your text and customizing a publication.

At the other end of the spectrum, heavyweights QuarkXPress and Adobe InDesign assume you're a graphics pro seeking do-it-yourself tools to design sophisticated documents and four-color separations. These products also assume you have a library of artwork and typefaces of your own, and thus ship with few extras.

Adobe PageMaker and Corel Ventura Publisher fit somewhere in the middle: They're more complicated than the fill-in-the-blanks programs, but supply templates and ancillary features that soften their somewhat formidable feature sets.

**THIS MONTH
FOR PROFESSIONALS**

Adobe InDesign 1.5
Rating: 8

QuarkXPress 4.1
Rating: 7

FOR OCCASIONAL PUBLISHERS

Adobe PageMaker
6.5 Plus
Rating: 9

Corel Ventura 8 Publisher
Rating: 8

FOR BEGINNERS

Corel Print Office 2000

Rating: 7

Microsoft Publisher 2000 Deluxe

Rating: 8

RATINGS

HOME OFFICE COMPUTING rates products on a scale of 1 to 10--with few 9's or 10's--based on value, performance, innovation (medals go to rare standouts in these areas), ease of use, and suitability for home offices. The (up arrow) and (down arrow) symbols indicate pros and cons.

Adobe InDesign 1.5 HOC RATING: 8

The newest kid on the DTP circuit, InDesign 1.5 offers a wide variety of features, complex page assembly, and first-rate drawing tools for experienced publishing gurus.

Unlike its rival QuarkXPress, InDesign is Internet-aware; we readily created documents for the Web in both HTML and PDF (Adobe Acrobat) formats. Not surprisingly, InDesign offers tight integration with Adobe's Photoshop and Illustrator. Likewise, its interface follows the Adobe dockable-palette model and permits only modest user configuration.

The absence of any tools for book compilation, Lists, and indices makes InDesign a pain to use for long documents, though otherwise the program is built for power publishing--layers, drawing tools, complex text wraps, spreads, bleeds, and automatic trapping are all here.

For the finicky studio pro, InDesign offers a multiline composer that looks ahead several lines to determine the best way to create optically pleasing text. You'll also find optical kerning and margin alignment, making InDesign a standout for text composition.

The professional design crowd--especially users who work with relatively short documents--will adore InDesign for its ultradeluxe features and Quark-beating \$699 price.

(up arrow) Flexible design features; fair price (down arrow) Few tools for too long documents

QuarkXPress 4.1 HOC RATING: 7

Unquestionably, QuarkXPress 4.1 (commonly known as Quark) is for the layout specialist. You won't find wizards, configurable palettes, or instant publishing features here, but you will find superb color management and exquisite type control.

Most features in Quark are accessed via floating palettes. Although the interface is streamlined, it lacks the context-sensitive help and personalization that are standard in other packages. Likewise, Web page designers won't find any HTML publishing features--a serious omission in light of the competition's attendance to the Internet.

Graphics experts will find much to love, including the ability to run text around both sides of an object, as well as convert text to objects and fill them with images. However, there are no layers as in the Adobe products here.

Although Quark's long-document tools pale next to those of Ventura Publisher, we were able to compile multichapter books, tables of contents, and indices. Quark also neatly synchronized style sheets across books and automatically updated page numbers in our documents.

For commercial print media, QuarkXPress is a standard. But its \$849 price tag makes it a costly, limited choice. We hope the upcoming 5.0 release addresses some of these issues.

(up arrow) Industry standard; great type control (down arrow) Pricey; no Internet features

Adobe PageMaker 6.5 Plus HOC RATING: 9

Before InDesign, PageMaker was Adobe's professional DTP offering, but now it's targeted at the mainstream business market. Forget the marketing hype, however; PageMaker 6.5 Plus remains a sophisticated product. Tabbed palettes are used to create and edit specific functions, such as layers, URL tags, colors, and styles. This version has searchable clip art, a template browser, and a Microsoft Office-style button bar to access file, formatting, and layout tools.

PageMaker rejects the frame concept--we placed text and graphics anywhere without being bound inside containers (you can use frames if you

want to). And the Story Editor--a feature InDesign sorely Lacks--is handy for editing text. PageMaker even has a plug-in for generating tables of contents and a multichapter book function for formatting Long documents.

Despite some shortcomings, we think this program successfully bridges the gap between wizard-driven and professional DTP. You even get a decent number of extras for PageMaker's relatively Low \$499 price, including Adobe Photoshop LE, templates, clip art, and photos. We think PageMaker 6. 5 Plus is the perfect toot for creating slick, attractive business documents.

(up arrow) Feature-rich; relatively inexpensive (down arrow) Business users will need more hand-holding

Corel Ventura 8 Publisher HOC RATING: 8

Like all Corel products, the \$695 Ventura Publisher comes bursting with Lots of extras-including WordPerfect 8, Photo-Paint 8, Database Publisher, and countless clip art images, fonts, templates, and utilities. With all this plus built-in features for editing text, bitmapped images, and vector graphics, Ventura is one DTP program that can stand by itself.

We easily found our way around the customizable interface, which includes a tabbed Navigator palette for viewing components Like master pages, tables of contents, cross-references, and macro scripts. The program has terrific type control, including the ability to fill text with images, and the best drawing tools we've seen in a DTP program.

Local output was flawless to both our printers, although Ventura wouldn't be our first choice for home-based workers who outsource their printing--the program's PostScript output can lock up commercial image-setters, so you'll want to send PDF files to your printer instead.

Nevertheless, if you are Looking for a complete package that can take care of all your in-house publishing needs, Ventura offers plenty of friendly, feature-packed bang for the buck.

(up arrow) Lots of extras; excellent type control (down arrow) Expensive; not the pro standard

Corel Print Office 2000 HOC RATING: 7

Although it uses the same template model as Microsoft Publisher, we didn't find the \$99 Corel Print Office 2000 as easy to use.

The interface is made up of a Project bar and the main workspace. To perform any action, we had to drill down through a series of folders and pages in the Project bar, then sometimes drill back up to make changes. This proved cumbersome and time-consuming.

Once we got the hang of the interface, however, Print Office's features proved quite versatile. Oddly shaped text boxes, beautiful color fills, and multiple drop shadows were easy to apply. If we right-clicked on a picture, we could send it to the included copy of Corel Photo House to add effects and optimize it for the Web.

For some reason, the CorelCentral address book/organizer is included, but we couldn't perform mail merges with it as we could with Microsoft Publisher.

You can easily create professional-looking brochures, Web pages, business cards, and other basic publications with Print Office 2000, but the program's awkward interface left us looking for another **desktop publisher**.

(up arrow) Elegant effects; attractive results (down arrow) Difficult to use; poor use of extras

Microsoft Publisher 2000 Deluxe HOC RATING: 8

Taking templates to the extreme, Microsoft Publisher is more Like one big wizard than a traditional page layout program. To create publications, you simply pick your publications type from a List, choose a style, and the program generates a template for you. The templates are grouped into design sets; if none appeals to you, there are blank ones to get you started.

Once you have a publication on the desktop, a Wizard bar helps you set a color scheme, add a Logo or clip art, or change the basic design. When you're ready to **print**, **Publisher** can save the document as a Web site, or package it to send to a service bureau or another computer.

All of the above is standard consumer fare, but smart, helpful tools for business publishers are everywhere. We quickly added animations and background sounds to a Web site, constructed complex tables, performed mail merges, designed our own mastheads, and even saved documents in Pocket Word format. Amazingly, Publisher supports advanced features such as process-color separations and automatic and custom trapping.

At \$99 alone or \$129 with Microsoft's Picture It image editor (the Deluxe bundle we tested), Microsoft Publisher is a deceptive bargain. On the surface, it's a friendly DTP program for beginners, but underneath it contains features you'd expect to find in a professional package costing three or four times as much.

(up arrow) Top-of-the-line DTP tools; easy to use (down arrow) More expensive than the competition

PRINT IT ON LINE

Why trot your unpublished electronic documents down to the local service bureau when you can send files to an e-printer?

At We Print Today (www.weprinttoday.com) you can order rubber stamps, signs, and engraving services online, as well as printed letterhead, forms, business cards, and other office products. Or you can ask for a quote for custom designs, using a convenient form with drop-down lists for paper type, size, ink color, and binding.

Kinko's (www.kinkos.com) offers a wide range of printing services and business products. You can use your own artwork or play with LiveDesigner, an interactive wizard that asks you a series of questions about your business and then generates a selection of printed pieces based on your criteria.

The iPrint Web site (www.iprint.com) offers Design Studio, which lets you select a design and customize its fonts, color, graphics, object positioning, and so on. You can save your work in progress and come back later to purchase your finished product, if you like. This site also offers some gorgeous full-color pieces. Of course, if you have your own designs and specifications, iPrint can provide custom printing services.

There are hundreds of printing services and service bureaus to choose from--you should compare price, shipping cost, the ability to accept **electronic files**, turnaround time, and satisfaction policy before you pick a printer. For handy information about choosing and working with service bureaus, check out About.com's Graphic Design Web site (graphicdesign.about.com). This site features articles on design considerations, font issues, definitions, tips, and do's and don'ts that you should explore before placing an order. It also is home to dozens of free fonts, portfolios, tutorials, and advice from professional graphic artists.

PRODUCT	LIST PRICE	MANUFACTURER
ADOBE INDESIGN 1.5	\$699	Adobe Systems Inc. 888-724-4508 www.adobe.com
QUARKXPRESS 4.1	\$849	Quark Inc. 800-676-4575 www.quark.com
ADOBE PAGEMAKER 6.5 PLUS	\$499	Adobe Systems Inc. 888-724-4508 www.adobe.com
COREL VENTURA 8 PUBLISHER	\$695	Corel Corp. 800-772-6735 www.corel.com
COREL PRINT OFFICE 2000	\$99	Corel Corp. 800-772-6735 www.corel.com
MICROSOFT PUBLISHER 2000 DELUXE	\$129	Microsoft Corp. 800-426-9400 www.microsoft.com/publisher

PRODUCT	REQUIREMENTS
ADOBE INDESIGN 1.5	Win 95/98/NT 4.0, 48MB RAM,

	130MB hard disk space, Pentium II processor (Windows); Mac OS 8.5 or Later, 48MB RAM with virtual memory, 120MB hard disk space, PowerPC processor (Mac)
QUARKXPRESS 4.1	Win 95/98/NT 4.0, 12MB RAM, 30MB hard disk space (Windows); Mac OS 7.1 or later, 10MB RAM, 14MB hard disk space (Mac)
ADOBE PAGEMAKER 6.5 PLUS	Win 95/98/NT 4.0, 16MB RAM, 140MB hard disk space, Pentium processor (Windows); Mac OS 7.53 or later, 9MB RAM, 26MB hard disk space, PowerPC processor (Mac)
COREL VENTURA 8 PUBLISHER	Win 95/98/NT 4.0, 16MB RAM, 75MB hard disk space, Pentium processor
COREL PRINT OFFICE 2000	Win 95/98/NT 4.0, 16MB RAM, 110MB hard disk space, Pentium processor (Windows); Mac OS 8.5 or later, 32MB RAM with virtual memory, 100MB hard disk space, G3 or G4 processor (Mac)
MICROSOFT PUBLISHER 2000 DELUXE	Win 95/98/NT 4.0, 16MB RAM, 127MB hard disk space, Pentium processor

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COMPANY NAMES: Corel Corp.--Products; Adobe Systems Inc.--Products; Quark Inc.--Products; Microsoft Corp.--Products
 GEOGRAPHIC CODES/NAMES: 1USA United States
 DESCRIPTORS: Software multiproduct review; DTP software
 EVENT CODES/NAMES: 350 Product standards, safety, & recalls
 PRODUCT/INDUSTRY NAMES: 7372440 (Graphics Software); 7372441 (DTP Software)
 SIC CODES: 7372 Prepackaged software
 NAICS CODES: 51121 Software Publishers
 TICKER SYMBOLS: CORL; ADBE; MSFT
 TRADE NAMES: Adobe InDesign 1.5 (DTP software)--Evaluation; QuarkXpress 4.1 (DTP software)--Evaluation; Adobe PageMaker (DTP software)--Evaluation; Corel Ventura 8.0 (DTP software)--Evaluation; Corel Print Office 2000 (DTP software)--Evaluation; Microsoft Publisher 2000 (DTP software)--Evaluation
 FILE SEGMENT: CD File 275

7/9/2 (Item 2 from file: 275)

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 Edwards, Stephen; Kingsley, Lawrence; Votsch, Victor; Walter, Mark
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Much has been said and written about the possible threat to print posed by electronic media, but, as firm believers in the value of print, we see a very different scenario-the Web is increasing demand for print, but it will have a profound impact on the way publishers and consumers approach the printing of documents. The Web will inevitably change the printing business, just as it has already begun to change irrevocably the publishing business.

We are not forecasting the immediate decline of offset printing. The changes in printing will take time and will not immediately affect the way long press runs of large-circulation serials and books are produced. But the Net will accelerate the use of digital printing, which already permeates the corporate setting. It will fuel continued growth in consumer (home and small office) printing. It will encourage on-demand printing of long documents, and it will play a role in the adoption of digital presses for customized and personalized promotional literature.

In short, the Web and the underlying Internet infrastructure that supports it should not be viewed as just outlets for electronic documents. They are also creating a new infrastructure for buying and delivering documents-whether they are data sheets or books-that will be printed.

With that in mind, this article looks at some of the ways the Internet is affecting printing and the implications for both printers and publishers.

In general, we see the Web's impact hitting two major areas of printing:

1. Facilitating a conventional printing business through better communication and customer service. For the past several years, most printers have treated the Web as a free billboard-a place to publish their sales and marketing materials-rather than as an integral component of their businesses. That is beginning to change, however. In printing, as in other businesses, the Web is becoming a conduit for commerce: a way to transact business electronically, complementing personal and written communication.

With the Internet serving as an international data pipeline for electronic information, and with Web browsers providing a universal user interface, commercial printers are beginning to allow customers to submit digitally prepared jobs over the Internet and even to check the status of jobs online. The all-digital workflow is gradually changing the commercial printer's master from film to digital form, adding further momentum to the trend toward shorter runs and on-demand printing. Reinforcing that trend will be the use of the Web as an input mechanism for capturing variable data placed into documents printed on digital presses.

2. Spurring demand for end-user printing. Just because people will be able to get information online doesn't mean that they'll want to read it on their screens. The number of applications that require printed output for legal, social or aesthetic reasons is staggering and will not go away for a very long time-if at all. But new developments in desktop printers, complemented by advances in Web-based printing such as PostScript 3 and HTML printing extensions, will improve the options that end users have for printing documents themselves. The shift will pose interesting challenges and opportunities for publishers of all types, both corporate and commercial.

Using the Web to facilitate conventional printing processes and business

UNTIL RECENTLY, tying a commercial printing business to the World Wide Web was a challenge for pioneers. There were no true off-the-shelf packages. The process required a lot of construction, configuration of custom client software and licensing. In short, a printing company that wanted a state-of-the-art Web presence needed to build the site itself. In 1995, A&A Printers' Robert Hu did just that, creating a site for customer service, estimates, job submission and tracking, and one-stop shopping for graphics services. (See The Seybold Report on Desktop Publishing, Vol. 10, No. 4, for a full account.) Now Hu's ideas have been transformed into commercialized services.

Electronic job submission

Today the most common way to submit digital jobs for analog (printing press) output is on Syquest or Jaz cartridges or other removable media.

Increasingly, transfer by courier is giving way to transfer by communications lines-dial-up connections by modem or ISDN, dedicated networks (such as the recently announced Scitex and British Telecom joint venture or the private networks that Wace, AGT and others run today) and satellite communications to remote printing plants.

It used to be that a printing company that wanted to offer customers a way to send files electronically had to develop or at least support the software that would be installed at its customer's site. The printer also had to manage the data communications between itself and its customers. A printer may still need to do this for some clients in order to offer quality customer service. Today, the Internet, unlike proprietary networks or dial-in accounts, provides relatively simple open access for a wider range of customers. Because many companies are already using the Internet for E-mail or other applications, there is a much smaller burden on the part of printers to manage their customers' communications access. Once customers are connected to the Internet, data can be sent anywhere. There is no struggling to make a connection or fiddling with baud rates, data bits and parity for every location you want to contact. Delivering copy and proofs is a matter of finding a site address rather than installing cable and hassling with the phone company.

Certain customers may still require dedicated connections for file transfer because of time and security considerations. The Internet is still too slow in too many places to handle the large files needed for publishing. Connecting to a public network still creates a security concern for many; hence, the popularity of proprietary ISDN networks from Wamnet, DAX and 4-Sight. Web browsers, though popular, are not yet universal.

Over the next few years, however, these concerns will diminish, and situations requiring the use of dedicated or private connections will become the exceptions, not the norm. Banking on this trend, a growing number of firms are introducing software and services to help printers get their businesses online.

Commercial software

Hu's homegrown solution has been copied by several software developers. Though none yet offer as rich an implementation as A&A provides, some do offer the advantage of being readily available at modest prices, with no development costs and some support.

The typical package includes server software installed at the printer's site, providing customers with dial-in numbers or Internet addresses to accept jobs digitally.

FreeMail's FreePrint. FreeMail is a telecommunications software company with a well-known E-mail system that offers several products that can help printers handle electronically delivered jobs. FreePrint was originally designed for dedicated networks and dial-in modems, but it can also be used on the Internet, depending on the customer's requirements. The user interface is the same regardless of the communications medium.

FreePrint is designed to be a client-server solution for the quick-print industry. It allows the user to complete a prebuilt job ticket and transfer files via FTP or E-mail. FreePrint contains its own file compression-decompression algorithms and a mail server that can be configured to accept attached files of any size. With FreeMail's Rapid Form Development Kit, the job ticket can be customized for an individual printer's needs.

Both the print shop server and the client software run on Windows and Mac hardware. FreePrint can also be run from a Web server. If you don't have a Web site, FreeMail's home page has a link to let users send jobs to customer print shops. Pricing is based on a sliding scale, depending on overall volume and the number of client-server licenses.

An early version of FreeMail was licensed by Kinko's to develop its Kinkonet service. Alpha Graphics also used FreePrint to build a dial-in electronic delivery system for its quick-print shops.

IPC's PrintEngine. Introduced this month at the Print '97 show, PrintEngine is essentially a job distribution system that features online order entry and digital transmission of files to participating print shops via the Internet. PrintEngine accepts digital files over the Internet and prepares them automatically for output to the appropriate digital copier, printer or platesetter.

The online order form allows customers to attach their files and select the output device, paper size, number of copies and whether the job will be printed on one or two sides. From here, they can request a price quote without processing the order. All financial transactions utilize a secure server.

Once IPC receives the file, the software checks to ensure that the file meets the parameters selected by the customer. If the file fails, the customer is notified via E-mail to correct the file and resend it. If it passes, the file can then be sent to the RIP for processing and output to the desired device. When the file has been processed, an invoice is generated by the system and sent to the customer via E-mail.

The IPC server runs on a 200-MHz dual Pentium Pro under NT 4.0. The IPC server will house the Web sites of all IPC-authorized partners and will list information about the printer, available printing stocks, prices and links to print drivers and show an online order form specific to that printer.

The system uses proprietary software developed by IPC with various Microsoft tools. The major difference with this system is that it deals solely with PostScript-based files that are ready for output, making it unsuitable for jobs that need further prepress processing.

The product has been in beta testing for the past year. During that period, the site received more than 2,000 orders from the U.S. and abroad.

PrintersWeb. Earlier this year Luminous introduced a more sophisticated and comprehensive approach than mere job submission. Called PrintersWeb, it is a database-driven, shrink-wrapped Web site for commercial printers and their customers. The package, which was developed for the graphic arts industry, provides services for both publishers and their service providers. It supports job submission, with customizable job tickets, through several file-transfer methods (E-mail or FTP). It also provides the printer with job tracking, automatic updating of client accounts, job estimation, quoting, scheduling and reporting, plus customer service via E-mail.

The software runs under NT 4.0 on a Microsoft Web server. It is bundled with Microsoft Access, but any ODBC-compliant database with an identical schema can be used. The entire application runs from the server, so clients or administrators can access the site with any Web browser through password-level security.

The application provides forms for job tickets, estimate requests and the like, which can be customized with an HTML editor. Drop-down menus guide the user through the process of completing the job ticket. Because the system requires customers to validate their activity by their ID, it's possible to customize the ticket so that customers see only the options relevant to their accounts.

Royal Impressions, a New York City commercial printer, is currently rolling out its Web-enabled service, dubbed EZRoyal, based on PrintersWeb (royalimpressions.com.) At the back end, EZRoyal will be tied to Royal Impressions' existing Luminous Open system to automate workflow. Royal Impressions is hoping to use EZRoyal as a way to differentiate the firm from other vendors that concentrate solely on delivering lowest-cost-per-page commodity printing.

Jim Cannata, director of new media, says he sees value in creating partnerships with customers that provide printing solutions to improve the business process. He also likes the way EZRoyal ties into sales: Part of the attraction of adding a Web-based front end is its utility as a sales presentation tool when visiting corporate customers.

PagePath's Launch. A product that is similar to FreePrint, PagePath's Launch originally was developed for use by prepress and printing firms with dial-in and proprietary networks, but it now supports the Web. Using the Launch client, customers at Macs or PCs with modems or on a private network fill out a work order on the screen to send files to their print shops at any time. The program automatically compresses the data and dials the number. The work-order form can be customized by the print shop to ensure that it includes all necessary information.

At the print shop, the job is received by the server, sent to a specified directory, decompressed automatically and added to the job queue. An operator, working at a Windows station, can view received jobs on the screen and sort them by customer name, job name, date of receipt or date

due. Other available job-management functions include adding or deleting jobs, archiving jobs to disk, editing the work-order information, initiating a preflight test, copying files and sending jobs to printers on the network.

The targeted markets are commercial printers, quick printers, school and university print shops, and other inplant printing facilities. Launch is used as a job-submission client by Xerox, DAX, IBM and Scitex.

Using the Web to drive on-demand printing

For printers that run digital presses, the Web is a natural medium for extending their businesses. Samples of inventory can be placed online and tied to a Web-based order form. The printer can offer small or nonprofit publishers a new distribution outlet, one for which the customer assumes no burden of inventory.

Several months ago, we wrote about Trafford's Web service-printing manuals and books on demand via a Web-based interface and a DocuTech back end (see Vol. 1, No. 10). Trafford, which is affiliated with a nearby commercial printer whose owners have invested in Trafford, has an online bookstore that carries an eclectic mix of titles aimed at niche markets. Trafford is now licensing its software, which handles job processing, ordering and tracking.

Commercial Communications, Inc.

Another firm that has been using the Web to drive on-demand printing is Commercial Communications, Inc. (CCI), a commercial printer and information distribution company in Hartland, WI. It prepares and publishes technical materials for printing on offset presses, digital printers (mainly a Xerox DocuColor 40), CD-ROM and the Internet. For many of its clients, it manages their entire libraries of technical publications, which are archived as "print-ready" documents or as pieces of the whole to be accessed and assembled on the fly using custom programming and templates.

CCI has its own printing and binding facilities, but it also transmits electronic documents over existing communication services to enable documents to be printed at facilities close to the final destination of the documents.

As part of its demand-printing operation, it offers offline scanning (so customers can send hard copy as well as **electronic files**), assembly, fulfillment services and generation of administrative reports. These reports about inventory, usage and distribution can be used by accounting, marketing and production departments for applications such as to note trends in the usage of literature to help in forecasting future demand.

FoliQuest

We haven't yet come across many shrink-wrapped systems for setting up Web-enabled on-demand printing services. One that is already in the field, however, is Instant Response, from FoliQuest of the Netherlands. It is a prebuilt tool that can offer on-demand printing from the Web, developed in conjunction with Colorbus and using a network of printers based on Colorbus controllers.

Instant Response provides a Web server at the FoliQuest site, containing a database of product literature available to sales representatives looking for documentation to send to prospects. The sales rep accesses a catalog of available documents, requests the appropriate ones, selects a cover letter to accompany them and types mailing addresses for the prospects that are to receive the printed materials. FoliQuest then selects the closest location for each order and sends the files for printing at those sites. Printing is done through a network of service bureaus with Colorbus Cyclone Print Stations. The prospects receive the materials by mail—often the next day, FoliQuest says.

FoliQuest manages the catalogs of documents for participating companies, but it doesn't manage the content of the **electronic files** themselves. FoliQuest also collects information for the companies.

Using the Web to capture variable data to drive printed output

It is one thing to use the Web as a way to order conventional print jobs. A more challenging endeavor is to use the interactivity of the Web to encourage the customer to submit information that is then used to drive the production of personalized printed literature.

In its simplest form, this might be a case of choosing a business-card

design from a set of choices on a Web page, typing in a business title and address, giving credit card details and then pressing "submit." The data a customer submits could be added to a FileMaker Pro database. The data from this database could then be used to generate Quark documents or, at its most sophisticated, variable-data printing on a digital press, all triggered by the capabilities of the Web.

Visitors to a car manufacturer's Web site, for example, could be asked for their tastes in color, tires and trim; their financial commitments; and so forth. The information could be passed to a variable-data program that would print customized brochures, each showing a car in the preferred color with the options appropriate for the price range.

This methodology could obviously be utilized in many other markets. We wrote about this a year ago when Stratus, a manufacturer of high-performance workstations, teamed up with Graphics Express to produce customized four-color brochures, based on input visitors left behind at the virtual trade show. (See The Seybold Report on **Desktop Publishing**, Vol. 10, No. 9.)

Today the concept has been picked up by a few firms in both the U.S. and Europe, but standard packages for doing this kind of customization are not yet available from the digital press manufacturers. What is in the field are systems that customers have built themselves. In at least two cases-Iprint and Pix FX-these users are considering offering their homegrown systems as commercial products.

Iprint

Iprint is a California firm that provides site-hosting and Web design services to printers. It has developed Iprint, an online store for ordering labels, stationery and business cards over the Web. While Iprint currently acts as a retailer, selling printing services through a number of Web sites, deals are planned to partner with commercial printing establishments and quick printers.

The Iprint system is an interactive, self-service environment for designing and ordering print. Built on top of the Netscape Enterprise server running on a series of NT servers, the Iprint software is designed to run in kiosk mode, which makes it possible to sell printing services in stationery stores or shopping malls as well as through Web sites.

How it works. Iprint is a server-based application that allows users to create jobs. It differs from other systems in that customers use Web browsers and the inherent WYSIWYG interface to input data and manipulate preformatted designs. Users are able to upload logos or custom graphics if they are available. Iprint's CEO, Royal Farros, claims that the use of a WYSIWYG interface and automation reduces the redo rate to less than one percent. The interface is simple, and it's meant to handle mass market jobs for customers who don't want to deal with a desktop application, such as PageMaker or even Microsoft Publisher. When a job is submitted, an EPS file is rendered and sent to the printer. It's possible to save designs for reordering. The system handles order tracking only through E-mail or telephone, but the target market isn't likely to require sophisticated online job tracking 24 hours a day, seven days a week.

Pix FX Ltd.

Pix FX Ltd. is part of the Romsey Communications Group, which consists of a printing company, a prepress operation and a graphic design agency, based near Southampton, England. Romsey has a variety of modern printing technologies, including an Indigo E-Print digital press. Pix FX, the design firm in the group, is an Internet consultancy that Romsey took over earlier this year with the intention of promoting itself more aggressively on the Internet.

We first noticed the firm at Imprinta, where it exhibited in the Indigo booth. Pix FX demonstrated software that allows customers to redesign and edit quite sophisticated print documents over the Web. As happens sometimes with products developed by end users, the original idea was merely to use the product for Romsey's own client base. However, the interest from end users, the press and equipment vendors at the show has led the firm to develop the project into a marketable commodity, which it calls Podesta.

How it works. Pix FX supplies a printer with a standard workstation with its software loaded on it. This workstation is connected to Pix FX's server over the Web. The printer supplies Pix FX with its customers'

designs in the form of Quark Xpress or Adobe PDF files.

These designs can consist of standard pages with choices for different pictures, text paragraphs and headings. In general, any element that can be placed on a page can be customized in a way similar to the variable-data selection menu found on Indigo and Xeikon systems.

Pix FX then generates a set of low-resolution "virtual pages" that take advantage of specially written ActiveX or Java files.

When the printer's clients access the site where these pages reside, they are given the opportunity to choose graphical elements, such as different pictures, by clicking on the picture area on the "virtual page."

Currently, only short headings can be edited, although it is possible to swap entire paragraphs, such as you might want to do for foreign-language versions of a document.

When the customers are happy with the design, they confirm the quantity of the print order. The Pix FX server then transmits a very short file-containing only the list of choices the client has made-to the printer's server, which then generates a PostScript file for the selected output device, which might be a digital press, an imagesetter or another device.

Pix FX points out that every function can be controlled through password access, so that only authorized personnel can access or order any printed material.

The Podesta marketing concept works in a similar way to some of the merchant-server sales models, such as Icat. Pix FX, in effect, is a service provider, maintaining control over the server side of the product, but allowing others to buy the client software to use with their own designs and added value. Because companies may wish to use this service for confidential printing projects such as price lists, for some users a wide-area intranet may be the only solution.

Pix FX is already in discussion with a number of countries about offering the server functionality abroad.

Moore Interactive Marketing Solutions

In the fall of 1996, Moore, one of the largest printers in the U.S., announced an on-demand, custom catalog service that it had set up in conjunction with KPN, a Netherlands-based telecommunications company. The service integrates database, print-on-demand and telecommunications technologies that allow companies to develop one-to-one relationships with target customers through real-time creation and distribution of customized print catalogs.

Through an automated phone call, consumers request custom catalogs featuring selected products. The catalogs include articles, advertisements, comparative test reports and dealer addresses related to the products. Via Moore's custom-printing program, which employs a Xeikon color printer, consumers receive their catalogs within 48 hours.

There are three parts to the system:

- * A voice-response system used by KPN, where the consumer dials in and punches a code into the phone to create the desired data sequence. The consumer is charged about \$1.50 for the call. The catalog is shipped to the consumer free. Orders can also be taken via teletext and the Web.

- * A high-speed, variable-data front end, developed by Moore over the past four years, that includes a layout application, a high-speed RIP, a high-speed disk array to hold the variable data and a proprietary interface to the printers. The layout application, called the Moore Variable Color Configuration, can import graphics, photos and layout elements from standard desktop applications and can interface to standard databases.

- * Digital printing equipment. In the Netherlands, Moore uses three Xeikon printers to fulfill requests. The company also uses Indigo printers for the project.

The Dutch program is a cooperative project between Moore and KPN. The cost of the catalogs is underwritten by the companies that advertise in them. For example, a consumer who requests information on home electronics might receive advertising for Sony or Mitsubishi as part of the catalog.

A&A Printers and Digital Graphics

Since first experimenting with connecting the Web to his commercial printing business, Robert Hu, of A&A Printers and Digital Graphics, has continued to develop his application. One current implementation, for

handling business cards, is designed for a printer that has an existing relationship with a large client. It involves creating a template for business, through which individuals enter their information through HTML forms. The application then feeds this information to the database publishing system, from which GIF and PDF renditions are created. The GIF preview lets the customer see the way the card will appear in print, while still in the midst of the ordering process. Once the individual approves, the system automatically sends an E-mail message to the customer's manager asking for authorization to go ahead with the print job. Once authorization is received, the system queues the job for a automatic imposition for digital press or offset press and also generates a PDF rendition, which the individual can use to print temporary business cards while waiting for the final box of 250 or 500 printed cards to be delivered.

This application is a good example of how the Web can be used to enhance the business of printing. The medium becomes a conduit for business at the same time that it serves as the vehicle for customers to create and submit new print jobs themselves, with a minimum of fuss. Customers get better service, and the printer gets more business.

Implications

As we see more products that are truly integrated into Web sites, the front ends for E-mail and FTP services begin to look inflexible and dated. Web-based front ends for printing-whether they are based at a single print shop or at a server distributing jobs to partners around the country or the globe-will become a standard method for job delivery.

Get networked

The trend toward use of the Internet as a front end to printing is supported by a recent study published by NPES, which predicted that in five years most submission and distribution will take place over the Internet.

The NPES study recommends that over the next one or two years publishers "get networked" to take advantage of what the communication medium offers.

Getting networked is easier said than done if you are expecting a simple solution. Data communications is a specialized field, and it is prone to the same problems of equipment obsolescence as the rest of the computer industry. Adding staff with data communications expertise will be as important as having staff with experience in the graphic arts.

The popularity of the World Wide Web has caused increased need for communications bandwidth. A number of solutions either exist now or are on the horizon, and it's important to note that not all methods will lead to the same place. ISDN, for example, is an older technology that will not scale up well. Not all new solutions provide true bidirectional bandwidth, especially those geared toward the consumer market. In general, you can download data much faster than you can upload it with satellite dishes, cable modems and ADSL lines.

A new set of high-bandwidth options will open up after December 1997, when the FCC auctions off licenses for cellular channels dedicated to high-speed data transfer called Local Multipoint Distribution Service (LMDS).

In reality, there is no single answer for all shops. In spite of the Web, you may still need to have multiple methods available for electronic delivery of jobs to satisfy customer demands. A Web site, combined with a dedicated network for large customers and dial-in lines for smaller ones, would cover all of the bases. While a dedicated, high-speed connection to the Internet may not be a practical solution for small shops, Web sites can be remotely hosted and accessed via dial-up or ISDN lines. Devices such as Whistle Communications' Interjet 200 provide simple ways for small shops to provide E-mail and file-transfer services.

In addition to taking in work, a network infrastructure can be used to pass jobs between different locations to balance workloads. Small shops may want to form networks, passing work to others with special equipment.

For printing over the public Internet, a host of concerns are introduced. Security problems can be addressed through the use of firewalls and creation of "extranets," interconnecting networks of business partners.

Watch the Web initiatives

The Web is creating a common infrastructure for business-to-business communications. This has been the case for years in certain industries, and there are well-established international standards, such as EDI

(electronic data interchange) for electronic commerce. Major initiatives are under way by companies such as Microsoft, Citibank, IBM, American Express and SAP to enhance use of the Internet as a commercial medium. There is significant reduction in costs by automating basic business processes. For example, Boise Cascade Office Products reduced its cost of processing orders by 50% after installing an Actra system. It's time for both publishers and printers to begin talking about conducting the entire ordering, invoicing and payment processes online. The rest of the business world will be moving in this direction, and, inevitably, the printing industry will follow suit and will want to take advantage of commercial software that serves its purposes.

Conclusion

Two hundred years ago, in the days of Ben Franklin, a printer was also a publisher. For most of this century, printing has been a manufacturing service. Ten years ago, the arrival of desktop laser printers made it possible for personal publishers to create digital masters to handle short runs just like Franklin did, but without the seven-year apprenticeship. Only recently has digital printing begun to affect offset printing of documents with press runs of more than several hundred copies. The World Wide Web will be a way for commercial printers to extend that business, even as it also feeds the growth of the next generation of printing-digital presses.

As printing continues to become more and more of an automated business, printers will need to work hard to enhance their level of customer service. Four years ago, speaking at a Seybold conference, Hu said that the printing firm that wanted to be in virtual manufacturing (and increasingly that is the direction for many printers) would become in essence a "Chooser-level icon on the customer's desktop." In the examples cited above, we can see the direction that printers will have to take: the use of the Web to improve communication between printer and client, and the use of the Web to drive digital printing.

The Internet's impact on end-user printing

At the same time that the Web is affecting the commercial printing business, it is changing the way end users print documents themselves. In the long run, it is the changes at the end-user side that will have the most profound impact on publishing. The Internet standards bodies are hammering out standards that will impact the entire computer industry, and related developments by vendors will dramatically change the capabilities end users have for printing documents.

In the past year we've seen a steady increase in the number of output devices that feature TCP/IP connectivity. Initially, this just meant that such printers could be hooked up to your local area network through a different network protocol. The next step was adding an HTML client (such as HP's Web JetAdmin) to fill out the job ticket or check on the status of the print queue. Some vendors are now adding Java clients.

This fall we'll begin to see this capability extended even further in several interesting ways:

- * Web-ready printing, a component of some output devices and an announced direction for Adobe's PostScript 3;
- * Internet Printing Protocol (IPP), a budding vendor-neutral standard for submitting jobs over the Internet to output devices;
- * Printing extensions to cascading style sheets; and
- * More robust batch formatting by end users printing documents delivered to them over the Internet.

The changes described here are new developments that have not yet made their way into the marketplace. We present them to indicate where things are headed, with the understanding that we'll be covering them in more detail in the future as they take hold.

Web-ready printing

Wouldn't it be nice if your output device could just fetch and print pages, without requiring you to download, format and spool them from your desktop? That capability is coming soon, and it will be more than just a convenience to consumers. It will turn printing devices into virtual fax machines, creating a new delivery option for publishers.

Get ready for IPP

In back rooms, by dim monitors, a potential revolution is brewing in terms of how we access and manage printers. The ringleaders include IBM,

Xerox, Adobe, Lexmark, Sun, Novell, Sharp, Underscore and Microsoft, but they also have recruited the remaining Who's Who in the industry—Apple, Brother, Data Products, Dazl, DEC, HP, Intel, Kyocera, Netscape, Panasonic, QMS, Ricoh, Tektronix and so on. The band goes by the innocuous name of the Printer Working Group (PWG), but over time it intends nothing less than to sidestep platform-dependent protocols—IPX/SPX, Netbui, AppleTalk, TCP/IP—and promulgate one easy, clean, scalable and Web-savvy means of communicating with heterogeneous printers. Viva la revolucion.

What's being developed is the Internet Printing Protocol (IPP), which is not a product, but an underlying technology that will be submitted to the Net's overarching technology committee, the Internet Engineering Task Force. When adopted as a standard and implemented by vendors, IPP will provide core printing functions over the Web and private networks. These functions include:

- * Querying a printer to determine its characteristics. Does it support PostScript or duplexing, for example?

- * Locating printers by capabilities (e.g., color, speed, resolution), geography or name.

- * Configuring printers.

- * Submitting or canceling print jobs.

- * Monitoring the status of a printer or print job.

IPP is independent of hardware platforms, operating systems and page description languages. It can use Web browsers, but "there's nothing in the spec that says you have to have a Web environment," according to Carl-Uno Manros, Xerox's principal engineer of advanced printing standards in El Segundo, CA. Accordingly, different vendors will have varying implementations of IPP. For Novell, IPP will "live" in the network operating system; for Microsoft, in the desktop operating system; for Xerox, in the printer; for Sun, in the print server; for Adobe, in software and in controllers; for IBM, in MVS, InfoPrint Manager, and printers. IPP alone is merely a foundation on which to build applications.

Steve Zilles, manager of standards at Adobe, makes an analogy to the telephone system. The pervasive Uniform Resource Identifier (URI) in IPP technology is the equivalent of a phone number. IPP, in turn, is the mechanism by which you can talk and send documents over the phone network. A URI, it should be pointed out, is similar to a URL, except that the URL is a nonpersistent pointer to a file, whereas a URI is a persistent identification number for devices. (The printer's IP address was not used as its VRI because that scheme is tied to one network protocol, and the PWG wants to ensure that IPP will operate over any network.)

Yuletide target. At an analysts briefing on August 27 in Waltham, MA, the PWG announced that it will submit a draft proposal ("Internet Proposal") to the IETF in September and expects to have a Request for Comments by the end of the year. Prototypes are already running, according to the PWG, and products from select vendors will appear by Christmas. The PWG has been working since October 1996.

A slimmed-down specification has recently been proposed by Microsoft and Hewlett-Packard. Originally called Simple Web Printing (SWP), but now officially dubbed IPP level 1, it supports only job validation and submission over the Web and returns all management functions to operating system-specific programs. As a result, many of the sophisticated management features proposed in the IPP will be optional.

Capabilities. The technical proposals of the PWG are available at www.pwg.org/ipp. The capabilities of IPP are still evolving, and all are in the draft stage, meaning that the general public cannot yet test products firsthand. Here, nonetheless, is a sample of the features that are fully documented on their Web site: Note that the initial products are not likely to have all of these features.

IPP will show you a list of jobs, so that if 400 jobs are ahead of yours, you can select another printer. It will report errors and let you resubmit the job if you so choose. It will understand PostScript, PCL, PJI, IPDS, EscapeP and Interpress languages, but it also will print from popular applications, such as Word or PowerPoint. If you know the location of a file that you want to print, instead of sending the document to the printer, you can send only the reference to the document—a Web address for example—and IPP will fetch the file. It also will let an administrator set up access control lists, defaults, templates or charge-back invoices. Both

revisable and final-form documents can be distributed.

The user can specify whether the job should be printed anyway that's possible ("just get it on paper"), or canceled if it cannot be printed exactly as specified. Stapling or binding are among the supported attributes.

Despite the tendency to revamp printing as we know it today, the PWG is chary of change for the sake of change. IPP will work with existing firewalls and use existing security protocols for authentication and authorization. If IPP encounters the Unix line printer demon (LPD), it remaps the print command. If it detects a job intended for a legacy printer, which knows nothing about IPP, the job is sent to a server that "talks to" that printer. If you fail to upgrade your browser, it will still work with IPP, because an HTTP 1.1 server can respond both to today's HTTP 1.0 browser and to the new HTTP 1.1 browsers, such as Microsoft Internet Explorer 4.0.

Extensibility. IPP is extensible in several ways-by the PWG officially, by a registered member of the group or by an individual site, whether associated with the group or not. Each type of extension is recognized by the architecture and treated accordingly.

The ease with which IPP can add new components derives from the adoption of an object model. IPP objects include the printer, job and document, any of which attributes can be queried. An output device's attributes include:

- * Its URI, or numeric identification number;
- * Its name, with text attributes, which easily can be localized for foreign countries;
- * Its state (whether the printer is running, stopped or jammed);
- * Whether it is accepting jobs;
- * The default machine languages it accepts; and
- * Which human languages (French, Russian, Japanese, etc.) are supported.

Job attributes include a job identifier, the job owner's identity and the job stage (pending, processing, or completed).

Document attributes include the document name and the page description language to be used.

Proceed with caution. IPP will facilitate **distribute-and-print publishing** on the Web, but it also will make it easier for spam artists to send a higher quality of junk fax, once the printer's URI is made public. Security features are built into the protocol, but network administrators will have to know how to throw the right "switches."

Meanwhile, parallel activities are going on in groups such as the Salutation Consortium and the Internet Fax Group. There is no significant coordination between the groups, although some IPP members belong to more than one standards body.

Companies such as Xerox (job ticketing), Dazel (print management), Novell (Novell Distributed Print Services), and Adobe (PostScript 3) already have built or are building products in some of the same areas covered by IPP. To this extent, they will lose some of their uniqueness-"That's life," in the words of Steve Zilles. It was pointed out, however, that PWG members could enlarge their market base on the front end (the consumers who are printing documents) and benefit from a significantly increased number of compatible printers on the back end. Each vendor thus can concentrate on what it does best.

Typically, the Web is viewed as a threat to print, not an ally, and certainly not as a beacon for hardcopy developers. Those assumptions will have to change.

Adobe's PostScript 3 plans

Announced this past April, Adobe PostScript 3 is the latest iteration of Adobe's printing system. But at its announcement, Adobe revealed that PostScript 3 will add more than just a few new PostScript operators. Part of the package that Adobe will be offering to output device suppliers is a Web server that goes with the RIP, for the express purpose of printing documents off the Web.

Because the PostScript 3 RIPs can read PDF, users will be able to send a URL to a Web-ready printer. For a PDF document, the output device will download and print it without it ever being sent to the user's workstation. We disagree with Adobe's claim that this will reduce traffic on the

Internet or the LAN (the PDF still has to be downloaded to the user's site, after all, and most printers will be connected to the net by a LAN), but without a doubt it will free users from having to wait for these typically large files to download to and print from their own machines.

EFI out first. This summer Electronics for Imaging (EFI) became the first Adobe OEM to deliver such capability. Its WebTools package uses a Web and Java server to offer remote-job and output-device management. End users use their browsers to locate the device. After entering their password, they download a Java applet that lets them initiate a job, see a job's status and even reprint jobs with new job parameters without resending the original file.

The Web-ready component of EFI's server enables users to instruct the output device to download PDF, GIF, JPEG and PostScript files.

What will it provide? As with IPP, the PostScript 3 Web-ready printers will open up interesting possibilities for publishers that produce publications, articles or reports in PDF. Today, documents are being "pushed" out to users' E-mail in-boxes, but in the future, publishers will have the option of sending them to a printer. The quality, though typically a far cry from offset, will nonetheless be a dramatic improvement over facsimile, especially for customers with 600-dpi printers. Adobe hopes that such Web-ready printers will be another boost to the adoption of Acrobat and the PDF format, which has already become the de facto standard for electronic pages, and is second only to HTML as the preferred format for transmitting publications to customers.

In certain segments of publishing, we expect that this boost will happen. It is a natural for journal publishing, for example, where individual articles can be downloaded by subscribers or ordered by nonsubscribers on a pay-per-view basis, and customers can be confident that the document they are printing is the same one that appeared in the print journal.

It is also a convenient supplement to HTML for other types of short technical documents, such as data sheets, that customers often want to print for reference. As the use of variable data in page makeup programs becomes more commonplace, we expect to see growth in PDF output of customized documents ordered over the Web. This would include not only data sheets but also longer documentation, such as custom manuals that reflect a customer's configuration. (Database Publishing Systems offers a product for doing this, with FrameMaker or Interleaf as the page makeup program.) If the product being ordered is software delivered online, then a natural complement would be a manual delivered as PDF to the customer's output device. This method would also work for purchase orders and other forms that are typically delivered by fax.

But what about HTML? In order for the printer to successfully print Web pages, it must handle HTML as well as PDF. Adobe plans to build into its PostScript 3 product family an HTML interpreter that will format Web pages for printing, much like today's Web browsers do.

Details on this product, announced last April, are still sketchy, and none of the first PostScript 3 machines have this feature. In April, Adobe said that its first HTML interpreter would handle HTML 2 with "some extensions." It would not handle HTML 3.2, and it would not support style sheets. When we asked for an update in late August, an Adobe spokesperson confirmed that the Web-ready features were "still under review" and that no new promises had been made. At this point, Adobe is not saying when we might expect to see a Web-ready PostScript 3 printer, but we expect to see the first ones announced in the next six months. Based on Adobe's present description of the capabilities planned for its HTML interpreter, which we'd describe as barely adequate, we see an obvious opportunity for Adobe's OEMs to differentiate themselves on how well they add value to the HTML formatting and printing process.

At the same time, because of the work of the Printer Working Group mentioned above, vendors are free to pursue Web-ready printing independent of PostScript 3. An HTML formatter could be built into a print server that feeds multiple devices as easily as in a stand-alone RIP.

Reformatting on the fly

On a different, parallel front, there are people who are working on improving the capability of software-running on servers or on desktops to reformat Web documents to make them look better when printed on paper.

These developments complement IPP in that they strive to produce better documents before you send them to the output device. Depending on how well they succeed, they could eventually alleviate the need to preformat documents altogether.

This last area of change is, in some respects, the one we'd like to see the most, because it would do more than any other to dramatically improve the typographic quality of Web documents.

Efforts outside of the browsers

We'll look first at two products that run outside of the conventional browsers, before focusing on efforts to improve the formatting that occurs within the browsers themselves.

Canon's WebRecord. A year ago Canon introduced a Web printing capability based on its own formatter. Developed by Canon's Australian research affiliate, Web-Record prints multiple Web pages at reduced size on a single sheet (see photo). The user specifies the Web addresses to be printed and which files to print from each address: only the home page, all linked pages, all directly linked pages, all pages in the same directory or subdirectory, or all pages on the same host. WebRecord then generates a list of pages, which can be reordered by dragging and dropping items in by name.

To simplify the task of specifying which URLs to print, the system tracks the user's access to Web addresses through a browser and lists them on the queue of jobs that are available for printing, relieving the user of having to recall and type the addresses.

From the queue, the user selects the jobs to be printed, specifies the number of columns to appear on each page and chooses the type size for text to be printed. The system then reformats the documents for printing or display. (Graphics are scaled automatically according to the page size.) Pages sometimes break in the middle when they appear at the bottom of a column, but they still provide a convenient record of the contents. The program also adds value by collecting all of the URLs within the pages being printed and listing them at the end.

As its name implies, WebRecord provides a good record of a user's Web activity, while cutting down drastically on the number of pages needed to print Web files, which otherwise would default to the browser's single-column, large-font presentation.

WebRecord runs under Windows and is available through Canon in Australia and in the U.S. The price is \$100 (Australian).

Archetype's NuDoc. One of the most promising technologies in this arena is Archetype's NuDoc, recently acquired by Bitstream. The engine, based on Archetype's extensive experience in page composition, is different from most formatters because it uses design "models." Models enable the designer to specify styles in parameters that are flexible, not fixed. They give the formatting engine enough information to create pages, while still allowing it to take into account the result of the H&J process on variable text.

For example, with NuDoc, a designer can specify that a particular type of element, say a product description, is boxed by a 1-point rule that is 1 pica away on all sides from a block of justified text. The box rule can be specified as part of the paragraph format, but it is drawn only after the text is composed. This makes it unnecessary for a page make-up artist to draw boxes manually while still ensuring that-regardless of the length of text-all of the product descriptions are handled consistently.

This example is fairly simple-the product actually handles much more sophisticated rules-but implementing rule-based pagination of this type on the fly requires a sophisticated formatter that does not occupy too much code yet still runs fast on desktop machines. To date, Archetype has succeeded in gaining the attention of a few developers in newspapers (first, SII and more recently, Atex), but with this product, it has yet to crack even the professional publishing market. We suspect that the time will soon come when its ideas, if not its technology, will reach the mass market through developments on the Web browser front.

Printing extensions to HTML style sheets

Over the summer, the working group within the World Wide Web Consortium that is developing cascading style sheets (CSS), produced a set of proposed printing extensions. These, when used in conjunction with CSS, are intended to enable publishers to send print-specific instructions

along with their HTML web documents.

The initial draft, published in June, covers just three areas:

Page breaks. Authors can specify page breaks before or after HTML elements, as can be done in page makeup programs. This is an obvious first step, one that goes nicely with the media-dependency addition described below.

Page boxes. A style sheet can specify page boxes that describe the printable area on a page. These can be different for verso and recto pages, and crop marks may be added. Because there are no HTML elements that correspond to a page, the page box is added as a declaration to the entire document, using the "at-rule" extension mechanism of CSS.

Although this addition still does not provide multiple-column layouts, it does give the browser some additional information for how to cope with documents that don't fit the page size of the target printer. Pages can be scaled or rotated to fit, for example, or the browser could prompt the user for a decision. As with other aspects of style sheets, the specification tells only how to insert the instructions; it leaves implementation up to the browser vendors.

Media dependencies. Portions of an HTML style sheet can be assigned to specific media. The current list includes screen, print, projector, Braille and aural. This allows the designer to assign a style to a specific media type, or to make a single style sheet cover multiple media, a welcome change from CSS 1, which requires separate style sheets for each media type.

Recognizing that "the best Web pages for screen display make the worst Web pages for print," the printing extension authors conclude that "the most active Web pages must be converted to static pages prior to printing. If this is not done just right, the intent of the author may be distorted and critical information may be lost."

The authors suggest that the solution, in situations where both media must be supported, is for the author or publisher to provide two versions—an active one for the screen and a static one for print. To support that, a new value "alternate" is proposed for the "REL" attribute of the link element. The intent is to provide a consistent method for attaching these static print versions to Web pages, so that browsers will automatically fetch the print version when the user chooses to print a Web page. The attached document need not be HTML; the browser could easily invoke a plug-in or Helper application to print PDF, PostScript or other types of files.

A first step. The printing extensions will not be all that a good formatter will need to produce good-looking print documents, but they are steps in the right direction, and the CSS working group is trying to move in steps that browser vendors can easily incorporate in their next software releases. When used in conjunction with style sheets and the next generation of Web browsers, the printing extensions give Web publishers some additional controls that should help consumers get, at least, printed output that looks better than what we get from today's technology.

In future extensions, the CSS group hopes to tackle multiple columns, page collections and additional page and type properties (e.g., headers, footers, sideturns, kerning and vertical justification). The latest version of the printing extensions proposal can be found at:
<http://www.w3.org/pub/WWW/TR/WD-print>

An XML/DSSSL alternative? For many years, the SGML community struggled to devise a style sheet language that would be robust enough to handle the wide variety of documents encoded in SGML. Several years ago, it at last succeeded in producing an ISO standard—the Document Style and Semantics Specification Language (DSSSL)—but it has proved too unwieldy for vendors to implement and has therefore seen little use. Since the creation last fall of XML, or simplified SGML, there has been interest in using a subset of DSSSL as a style sheet mechanism for Web documents. Last month excitement swirled around the rumors that such a proposal (from none other than Microsoft) was imminent, but it failed to materialize at the XML developer conference in Montreal (see page 3).

Although we haven't yet seen a concrete proposal, a subset of DSSSL could be a giant step forward for Web style sheets. DSSSL covers all the bases needed by a robust formatting engine, and we think it makes sense to have such a language to go along with XML, the language for creating Web

documents with your own tags.

How soon will browsers H&J?

Today's Web browsers output at the sophistication level of PostScript word processors in 1986. At that time, Word, WordPerfect and XyWrite could specify PostScript fonts, sizes and character attributes, as well as leading (so different levels of heads could be easily distinguished), but they did not handle multiple columns, they did not provide true H&J and they lacked control over interword and intercharacter spacing.

It took only a few years for the public to embrace, indeed expect, such functionality at the desktop level for making printed pages. But in this decade, consumers have been so enamored of the low cost, fast speed and excellent navigation of the Web that the browsers' comparatively crude handling of type has been viewed as an acceptable compromise.

We think it's reasonable to expect that Web browsers will grow up the way word processors did, to the point where they at least handle the basics of page composition. Netscape, in an strategic plan outlined earlier this year, stated its intention to create a rendering engine, code-named Apollo, whose formatting capabilities would rival desktop publishing tools. Microsoft has not yet made such grand pronouncements, but to date it has shown an uncanny ability to counter every move that Netscape makes. It will take only one of these vendors, showing that H&J makes a difference, to bring this issue back to the fore.

The difference it would make. Ultimately, we need a smart H&J program that can accept tagged input and style sheets and produce good-looking results on the fly. By this we mean dynamic page composition-reformatting the document, either at the end-user workstation or at the printer itself-at the point at which a document is printed. This technology is the most difficult to implement, but it is the most exciting, because it opens up many new and interesting possibilities for end-user printing.

We alluded to this earlier in describing Web style sheets. As envisioned by its creators, the Web browser will reformat the document according to a style sheet (created by the publisher) that is designed specifically for printing. Until the browsers have a decent formatting engine, rich style sheets are a moot point, and publishers seeking to offer their customers high-quality output will have to opt for attaching static renditions, or follow the conventional model of mass printing before distribution.

Conclusion

Without a doubt, the Internet is galvanizing the computer industry to pay attention to printing. Documents may be delivered electronically, but people still like to read from paper. To quote the draft of the Printing Extensions to CSS, "No one has yet invented a cheaper, more reliable, more portable, more convenient, or more universally acceptable 'reader' of information than the printed page . . . Contrary to conventional wisdom, the advent of the Web is very likely to cause an overall increase in printing rather than its demise."

Taken together, the developments highlighted in this article will be important in bringing high-quality printing from the Web to the desktop. If publishers (both corporate and commercial) could count on the formatter to do a decent job of recomposing the document for the target printer, there would be less need to cast its original page formatting in stone (such as is done with Acrobat). The result would be faster downloads and, potentially, formatting that is better adapted to the target output device. A document that originates in portrait mode could have design models for landscape mode (screen viewing); U.S. and international letter-sized paper; and maybe one for printing two pages per each side of paper, as can be done with WebRecord and desktop presentation programs. An application at the desktop could give users better control over how they want their Web documents are printed and could accommodate those with vision and hearing disabilities.

To the extent that software can automate the craft of page composition, and digital printing technology can make it convenient to print documents on demand, when and where we want them printed, the market will gravitate toward desktop printing and the new paradigm of Web-ready printing. The results may not be as pleasing as those produced in the past by hand by master typographers and pressmen, but economics and the seemingly insatiable desire to receive information more quickly will propel

the printing industry forward in its march toward an all-digital workflow.

By now, most publishers produce their document masters electronically, and increasingly these page masters will be sent to digital output devices to create printed pages. The harder challenge still facing much of the industry is how to adapt to a new paradigm, one in which the master document-edited, proofread and published-doesn't take the form of print until the customer pushes the print button.

New at Print '97

A number of vendors introduced Web components to print-management software at Print '97, taking place this month in Chicago. We haven't seen them yet, but here is a brief rundown of some of the current products providing Web-based job submission or tracking.

Logic's WebPartner. Logic's WebPartner software uses the Web to give print buyers more control over their orders and jobs. It enables a printer's customers to gain direct access to product and job information over the Internet. It also offers an online method for placing orders and obtaining price quotes.

The initial suite includes quote requests, history and status reporting, and orders for finished goods. Other functions, including direct order entry by the customer, are in the works.

Printers that have their own network server and Internet connection will be able to run WebPartner directly. Companies with Internet access but no Web page can use a special E-mail-only version of WebPartner for quote requests and orders. A company that isn't on the Internet at all will be able to offer WebPartner to its customers by way of Logic's home page, where a special link to check passwords will bring up WebPartner's menus and forms.

Pace Systems Group. Pace has added an Internet Window to its print-management system. The Internet Window includes Web-hosting services, URL registration and the ability to send files over the Internet for printing.

The system also allows customers to receive price quotes, place orders, inquire about job status and check on their finished goods inventory.

Programmed Solutions. In version 10 of its print-management software, which is now a 32-bit Windows application, Programmed Solutions has added Internet connectivity. The system handles multiple simultaneous estimates and reports, and it permits customers to access information about jobs via the Internet. Its WebLink module allows customers to enter requests for price quotes, determine job status and make inventory-control and fulfillment inquiries.

Streamline Solutions. Streamline Solutions is offering a print-management system that enables customers to access job status information, request price quotes and have their orders fulfilled over the Internet. For reprinting orders, customers can select items from a list of their existing jobs and specify a location for mailing.

Tailored Solutions. Tailored's job-tracking software for prepress and sheet-fed lithographic printers, LithoTraxx, now supports access via the Internet. LithoTraxx allows customers to access job status information and request quotes over the Internet. The system can also utilize Internet browsers as clients, allowing users to access the system.

Vercom Software. The developer of the Primac business management system for medium to large printers, Vercom is introducing Internet connectivity, which enables customers to access data, such as paper inventory, finished items, job and order status and shipping information.

UniData, which supplies the relational database for the system, is using Java-based scripts to access the information in the database and serve it on the Web. Log-in and security features are supported. Future plans include adding support for the submission of job specs to generate estimates or quotes, and real-time job status viewing, information for which will be fed via bar codes from the plant floor.

DAZEL: PDF Makes the Web Another Output Device

To see where corporate Internet printing is headed, consider the firm Dazel. The latest iteration of its sophisticated output server spools documents to an intranet as easily as to a print output device.

Dazel's software manages computer output from mainframes, Unix and Windows NT and runs on all three platforms as both server and client. From

any of these platforms, an authorized user can choose a printer, fax machine, E-mail address or pager connected to one of the other platforms. Because Dazel's Output Server manages each device, separate device drivers do not have to be installed, cutting down on administrative overhead.

Dazel recognizes the main output formats-AFP, PostScript, PCL, PDF, Metacode, XES (Xerox), HTML, FrameMaker MIF and binary-and, on the basis of them, automatically routes jobs to the appropriate printer. If you're in a large corporate environment, where, say, a sales or accounting report has to go to remote printers of different types, and you haven't a clue what the printers are or what they need, Output Server will take over. This software delivers the job, monitors the job as it's being performed and then sends a report when the job is complete. If the printer dies in the middle of a job, Output Server will resume from the last complete page. If the problem cannot be corrected, Output Server will page or E-mail any designated administrator. Meanwhile, the job can roll over to a fax machine or the next closest printer, all without human intervention. This kind of functionality, offered today by Dazel, was addressed in the original IPP spec, but it has since been redefined for more modest goals (see page 14).

Ever wasted your time printing a document and then faxing it? Many products let you send a fax from your computer, but printing and faxing are a two-step operation. What if someone else in your organization needs an E-mail of the same document? A third step is needed. Still more steps are needed to post the document to an intranet. Dazel simplifies the process by letting you print, fax, E-mail or publish a document to the Web, or use any combination thereof, by prearranged user and document groups that can appear as a single icon. In this way, separate functions that can be accomplished, say, with Win-Fax or Lotus Notes, are integrated into a management system.

MetaWeb

Dazel has three products: Output Server, Dazel Express and MetaWeb. The first two operate as client-server. MetaWeb is an intriguing new product that is built on Windows' publish-and-subscribe model. On one side of the communication is a Web server utilizing NSAPI (Netscape's API) or ISAPI (Microsoft's API). On the other side of the communication, you hook up MetaWeb to Output Server in the same manner as you would connect a printer to Output Server. MetaWeb then passes HTML to standard Web browsers. This configuration adds security that is not found in the browser alone, for only authorized clients have MetaWeb and access to Output Server. MetaWeb, unlike Output Server, retains documents for an extended period, using Verity's search engine to index the documents for retrieval.

What gets to the MetaWeb from the server is text, HTML or PDF. MetaWeb puts an HTML "wrapper" around the PDF so that you can view the document from a browser. When you access the document, it automatically fires off the Acrobat viewer.

Target market

Dazel is aimed squarely at large corporations in which output-management concerns justify the \$60,000 license for 1 to 150 users. This market presupposes multiple locations and multiple formats, running on multiple platforms.

The appeal to this market is not publishing per se. Internal documents and reports may be highly formatted, but corporations don't treat them the same way as "published" documents for external consumption. Dazel's ability to be the back end for enterprise-wide applications (e.g., SAP R/3, Oracle Application Suite) or the front end for enterprise utilities (e.g., CA Unicenter and HP Open View) is what makes it attractive.

Dazel has been doubling its revenues since it was founded in 1993. Revenues in 1994 were over \$800,000; in 1995, \$4.5 million; in 1996, \$9.7 million; and in 1997, Dazel expects millions in the high teens or twenties.

Conclusion

Dazel's appeal is to the customer who has a big problem and needs to solve it yesterday. It offers tremendous functionality at a high price.

While Dazel is meeting the needs of a select customer base, its high-end approach may cut it off from the potentially far larger number of users in smaller corporate and professional settings. Dazel's long-term strategy includes plans to diversify its product line, but if IPP is adopted by the broad market, the firm may cede the middle to low end of the

market to companies such as Microsoft, Novell and Adobe, who don't mind selling workgroup solutions.

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Much has been said and written about the possible threat to print posed by electronic media, but, as firm believers in the value of print, we see a very different scenario-the Web is increasing demand for print, but it will have a profound impact on the way publishers and consumers approach the printing of documents. The Web will inevitably change the printing business, just as it has already begun to change irrevocably the publishing business.

We are not forecasting the immediate decline of offset printing. The changes in printing will take time and will not immediately affect the way long press runs of large-circulation serials and books are produced. But the Net will accelerate the use of digital printing, which already permeates the corporate setting. It will fuel continued growth in consumer (home and small office) printing. It will encourage on-demand printing of long documents, and it will play a role in the adoption of digital presses

for customized and personalized promotional literature.

In short, the Web and the underlying Internet infrastructure that supports it should not be viewed as just outlets for electronic documents. They are also creating a new infrastructure for buying and delivering documents-whether they are data sheets or books-that will be printed.

With that in mind, this article looks at some of the ways the Internet is affecting printing and the implications for both printers and publishers.

In general, we see the Web's impact hitting two major areas of printing:

1. Facilitating a conventional printing business through better communication and customer service. For the past several years, most printers have treated the Web as a free billboard-a place to publish their sales and marketing materials-rather than as an integral component of their businesses. That is beginning to change, however. In printing, as in other businesses, the Web is becoming a conduit for commerce: a way to transact business electronically, complementing personal and written communication.

With the Internet serving as an international data pipeline for electronic information, and with Web browsers providing a universal user interface, commercial printers are beginning to allow customers to submit digitally prepared jobs over the Internet and even to check the status of jobs online. The all-digital workflow is gradually changing the commercial printer's master from film to digital form, adding further momentum to the trend toward shorter runs and on-demand printing. Reinforcing that trend will be the use of the Web as an input mechanism for capturing variable data placed into documents printed on digital presses.

2. Spurring demand for end-user printing. Just because people will be able to get information online doesn't mean that they'll want to read it on their screens. The number of applications that require printed output for legal, social or aesthetic reasons is staggering and will not go away for a very long time-if at all. But new developments in desktop printers, complemented by advances in Web-based printing such as PostScript 3 and HTML printing extensions, will improve the options that end users have for printing documents themselves. The shift will pose interesting challenges and opportunities for publishers of all types, both corporate and commercial.

Using the Web to facilitate conventional printing processes and business

UNTIL RECENTLY, tying a commercial printing business to the World Wide Web was a challenge for pioneers. There were no true off-the-shelf packages. The process required a lot of construction, configuration of custom client software and licensing. In short, a printing company that wanted a state-of-the-art Web presence needed to build the site itself. In 1995, A&A Printers' Robert Hu did just that, creating a site for customer service, estimates, job submission and tracking, and one-stop shopping for graphics services. (See The Seybold Report on **Desktop Publishing**, Vol. 10, No. 4, for a full account.) Now Hu's ideas have been transformed into commercialized services.

Electronic job submission

Today the most common way to submit digital jobs for analog (printing press) output is on Syquest or Jaz cartridges or other removable media. Increasingly, transfer by courier is giving way to transfer by communications lines-dial-up connections by modem or ISDN, dedicated networks (such as the recently announced Scitex and British Telecom joint venture or the private networks that Wace, AGT and others run today) and satellite communications to remote printing plants.

It used to be that a printing company that wanted to offer customers a way to send files electronically had to develop or at least support the software that would be installed at its customer's site. The printer also had to manage the data communications between itself and its customers. A printer may still need to do this for some clients in order to offer quality customer service. Today, the Internet, unlike proprietary networks or dial-in accounts, provides relatively simple open access for a wider range of customers. Because many companies are already using the Internet for E-mail or other applications, there is a much smaller burden on the part of printers to manage their customers' communications access. Once customers are connected to the Internet, data can be sent anywhere. There is no

struggling to make a connection or fiddling with baud rates, data bits and parity for every location you want to contact. Delivering copy and proofs is a matter of finding a site address rather than installing cable and hassling with the phone company.

Certain customers may still require dedicated connections for file transfer because of time and security considerations. The Internet is still too slow in too many places to handle the large files needed for publishing. Connecting to a public network still creates a security concern for many; hence, the popularity of proprietary ISDN networks from Wamnet, DAX and 4-Sight. Web browsers, though popular, are not yet universal.

Over the next few years, however, these concerns will diminish, and situations requiring the use of dedicated or private connections will become the exceptions, not the norm. Banking on this trend, a growing number of firms are introducing software and services to help printers get their businesses online.

Commercial software

Hu's homegrown solution has been copied by several software developers. Though none yet offer as rich an implementation as A&a provides, some do offer the advantage of being readily available at modest prices, with no development costs and some support.

The typical package includes server software installed at the printer's site, providing customers with dial-in numbers or Internet addresses to accept jobs digitally.

FreeMail's FreePrint. FreeMail is a telecommunications software company with a well-known E-mail system that offers several products that can help printers handle electronically delivered jobs. FreePrint was originally designed for dedicated networks and dial-in modems, but it can also be used on the Internet, depending on the customer's requirements. The user interface is the same regardless of the communications medium.

FreePrint is designed to be a client-server solution for the quick-print industry. It allows the user to complete a prebuilt job ticket and transfer files via FTP or E-mail. FreePrint contains its own file compression-decompression algorithms and a mail server that can be configured to accept attached files of any size. With FreeMail's Rapid Form Development Kit, the job ticket can be customized for an individual printer's needs.

Both the print shop server and the client software run on Windows and Mac hardware. FreePrint can also be run from a Web server. If you don't have a Web site, FreeMail's home page has a link to let users send jobs to customer print shops. Pricing is based on a sliding scale, depending on overall volume and the number of client-server licenses.

An early version of FreeMail was licensed by Kinko's to develop its Kinkonet service. Alpha Graphics also used FreePrint to build a dial-in electronic delivery system for its quick-print shops.

IPC's PrintEngine. Introduced this month at the Print '97 show, PrintEngine is essentially a job distribution system that features online order entry and digital transmission of files to participating print shops via the Internet. PrintEngine accepts digital files over the Internet and prepares them automatically for output to the appropriate digital copier, printer or platesetter.

The online order form allows customers to attach their files and select the output device, paper size, number of copies and whether the job will be printed on one or two sides. From here, they can request a price quote without processing the order. All financial transactions utilize a secure server.

Once IPC receives the file, the software checks to ensure that the file meets the parameters selected by the customer. If the file fails, the customer is notified via E-mail to correct the file and resend it. If it passes, the file can then be sent to the RIP for processing and output to the desired device. When the file has been processed, an invoice is generated by the system and sent to the customer via E-mail.

The IPC server runs on a 200-MHz dual Pentium Pro under NT 4.0. The IPC server will house the Web sites of all IPC-authorized partners and will list information about the printer, available printing stocks, prices and links to print drivers and show an online order form specific to that printer.

The system uses proprietary software developed by LPC with various Microsoft tools. The major difference with this system is that it deals solely with PostScript-based files that are ready for output, making it unsuitable for jobs that need further prepress processing.

The product has been in beta testing for the past year. During that period, the site received more than 2,000 orders from the U.S. and abroad.

PrintersWeb. Earlier this year Luminous introduced a more sophisticated and comprehensive approach than mere job submission. Called PrintersWeb, it is a database-driven, shrink-wrapped Web site for commercial printers and their customers. The package, which was developed for the graphic arts industry, provides services for both publishers and their service providers. It supports job submission, with customizable job tickets, through several file-transfer methods (E-mail or FTP). It also provides the printer with job tracking, automatic updating of client accounts, job estimation, quoting, scheduling and reporting, plus customer service via E-mail.

The software runs under NT 4.0 on a Microsoft Web server. It is bundled with Microsoft Access, but any ODBC-compliant database with an identical schema can be used. The entire application runs from the server, so clients or administrators can access the site with any Web browser through password-level security.

The application provides forms for job tickets, estimate requests and the like, which can be customized with an HTML editor. Drop-down menus guide the user through the process of completing the job ticket. Because the system requires customers to validate their activity by their ID, it's possible to customize the ticket so that customers see only the options relevant to their accounts.

Royal Impressions, a New York City commercial printer, is currently rolling out its Web-enabled service, dubbed EZRoyal, based on PrintersWeb (royalimpressions.com.) At the back end, EZRoyal will be tied to Royal Impressions' existing Luminous Open system to automate workflow. Royal Impressions is hoping to use EZRoyal as a way to differentiate the firm from other vendors that concentrate solely on delivering lowest-cost-per-page commodity printing.

Jim Cannata, director of new media, says he sees value in creating partnerships with customers that provide printing solutions to improve the business process. He also likes the way EZRoyal ties into sales: Part of the attraction of adding a Web-based front end is its utility as a sales presentation tool when visiting corporate customers.

PagePath's Launch. A product that is similar to FreePrint, PagePath's Launch originally was developed for use by prepress and printing firms with dial-in and proprietary networks, but it now supports the Web. Using the Launch client, customers at Macs or PCs with modems or on a private network fill out a work order on the screen to send files to their print shops at any time. The program automatically compresses the data and dials the number. The work-order form can be customized by the print shop to ensure that it includes all necessary information.

At the print shop, the job is received by the server, sent to a specified directory, decompressed automatically and added to the job queue. An operator, working at a Windows station, can view received jobs on the screen and sort them by customer name, job name, date of receipt or date due. Other available job-management functions include adding or deleting jobs, archiving jobs to disk, editing the work-order information, initiating a preflight test, copying files and sending jobs to printers on the network.

The targeted markets are commercial printers, quick printers, school and university print shops, and other inplant printing facilities. Launch is used as a job-submission client by Xerox, DAX, IBM and Scitex.

Using the Web to drive on-demand printing

For printers that run digital presses, the Web is a natural medium for extending their businesses. Samples of inventory can be placed online and tied to a Web-based order form. The printer can offer small or nonprofit publishers a new distribution outlet, one for which the customer assumes no burden of inventory.

Several months ago, we wrote about Trafford's Web service-printing manuals and books on demand via a Web-based interface and a DocuTech back end (see Vol. 1, No. 10). Trafford, which is affiliated with a nearby

commercial printer whose owners have invested in Trafford, has an online bookstore that carries an eclectic mix of titles aimed at niche markets. Trafford is now licensing its software, which handles job processing, ordering and tracking.

Commercial Communications, Inc.

Another firm that has been using the Web to drive on-demand printing is Commercial Communications, Inc. (CCI), a commercial printer and information distribution company in Hartland, WI. It prepares and publishes technical materials for printing on offset presses, digital printers (mainly a Xerox DocuColor 40), CD-ROM and the Internet. For many of its clients, it manages their entire libraries of technical publications, which are archived as "print-ready" documents or as pieces of the whole to be accessed and assembled on the fly using custom programming and templates.

CCI has its own printing and binding facilities, but it also transmits electronic documents over existing communication services to enable documents to be printed at facilities close to the final destination of the documents.

As part of its demand-printing operation, it offers offline scanning (so customers can send hard copy as well as **electronic files**), assembly, fulfillment services and generation of administrative reports. These reports about inventory, usage and distribution can be used by accounting, marketing and production departments for applications such as to note trends in the usage of literature to help in forecasting future demand.

FoliQuest

We haven't yet come across many shrink-wrapped systems for setting up Web-enabled on-demand printing services. One that is already in the field, however, is Instant Response, from FoliQuest of the Netherlands. It is a prebuilt tool that can offer on-demand printing from the Web, developed in conjunction with Colorbus and using a network of printers based on Colorbus controllers.

Instant Response provides a Web server at the FoliQuest site, containing a database of product literature available to sales representatives looking for documentation to send to prospects. The sales rep accesses a catalog of available documents, requests the appropriate ones, selects a cover letter to accompany them and types mailing addresses for the prospects that are to receive the printed materials. FoliQuest then selects the closest location for each order and sends the files for printing at those sites. Printing is done through a network of service bureaus with Colorbus Cyclone Print Stations. The prospects receive the materials by mail—often the next day, FoliQuest says.

FoliQuest manages the catalogs of documents for participating companies, but it doesn't manage the content of the **electronic files** themselves. FoliQuest also collects information for the companies.

Using the Web to capture variable data to drive printed output

It is one thing to use the Web as a way to order conventional print jobs. A more challenging endeavor is to use the interactivity of the Web to encourage the customer to submit information that is then used to drive the production of personalized printed literature.

In its simplest form, this might be a case of choosing a business-card design from a set of choices on a Web page, typing in a business title and address, giving credit card details and then pressing "submit." The data a customer submits could be added to a FileMaker Pro database. The data from this database could then be used to generate Quark documents or, at its most sophisticated, variable-data printing on a digital press, all triggered by the capabilities of the Web.

Visitors to a car manufacturer's Web site, for example, could be asked for their tastes in color, tires and trim; their financial commitments; and so forth. The information could be passed to a variable-data program that would print customized brochures, each showing a car in the preferred color with the options appropriate for the price range.

This methodology could obviously be utilized in many other markets. We wrote about this a year ago when Stratus, a manufacturer of high-performance workstations, teamed up with Graphics Express to produce customized four-color brochures, based on input visitors left behind at the virtual trade show. (See The Seybold Report on **Desktop Publishing**,

Today the concept has been picked up by a few firms in both the U.S. and Europe, but standard packages for doing this kind of customization are not yet available from the digital press manufacturers. What is in the field are systems that customers have built themselves. In at least two cases-Iprint and Pix FX-these users are considering offering their homegrown systems as commercial products.

Iprint

Iprint is a California firm that provides site-hosting and Web design services to printers. It has developed Iprint, an online store for ordering labels, stationery and business cards over the Web. While Iprint currently acts as a retailer, selling printing services through a number of Web sites, deals are planned to partner with commercial printing establishments and quick printers.

The Iprint system is an interactive, self-service environment for designing and ordering print. Built on top of the Netscape Enterprise server running on a series of NT servers, the Iprint software is designed to run in kiosk mode, which makes it possible to sell printing services in stationery stores or shopping malls as well as through Web sites.

How it works. Iprint is a server-based application that allows users to create jobs. It differs from other systems in that customers use Web browsers and the inherent WYSIWYG interface to input data and manipulate preformatted designs. Users are able to upload logos or custom graphics if they are available. Iprint's CEO, Royal Farros, claims that the use of a WYSIWYG interface and automation reduces the redo rate to less than one percent. The interface is simple, and it's meant to handle mass market jobs for customers who don't want to deal with a desktop application, such as PageMaker or even Microsoft Publisher. When a job is submitted, an EPS file is rendered and sent to the printer. It's possible to save designs for reordering. The system handles order tracking only through E-mail or telephone, but the target market isn't likely to require sophisticated online job tracking 24 hours a day, seven days a week.

Pix FX Ltd.

Pix FX Ltd. is part of the Romsey Communications Group, which consists of a printing company, a prepress operation and a graphic design agency, based near Southampton, England. Romsey has a variety of modern printing technologies, including an Indigo E-Print digital press. Pix FX, the design firm in the group, is an Internet consultancy that Romsey took over earlier this year with the intention of promoting itself more aggressively on the Internet.

We first noticed the firm at Imprinta, where it exhibited in the Indigo booth. Pix FX demonstrated software that allows customers to redesign and edit quite sophisticated print documents over the Web. As happens sometimes with products developed by end users, the original idea was merely to use the product for Romsey's own client base. However, the interest from end users, the press and equipment vendors at the show has led the firm to develop the project into a marketable commodity, which it calls Podesta.

How it works. Pix FX supplies a printer with a standard workstation with its software loaded on it. This workstation is connected to Pix FX's server over the Web. The printer supplies Pix FX with its customers' designs in the form of Quark Xpress or Adobe PDF files.

These designs can consist of standard pages with choices for different pictures, text paragraphs and headings. In general, any element that can be placed on a page can be customized in a way similar to the variable-data selection menu found on Indigo and Xeikon systems.

Pix FX then generates a set of low-resolution "virtual pages" that take advantage of specially written ActiveX or Java files.

When the printer's clients access the site where these pages reside, they are given the opportunity to choose graphical elements, such as different pictures, by clicking on the picture area on the "virtual page."

Currently, only short headings can be edited, although it is possible to swap entire paragraphs, such as you might want to do for foreign-language versions of a document.

When the customers are happy with the design, they confirm the quantity of the print order. The Pix FX server then transmits a very short

file-containing only the list of choices the client has made to the printer's server, which then generates a PostScript file for the selected output device, which might be a digital press, an imagesetter or another device.

Pix FX points out that every function can be controlled through password access, so that only authorized personnel can access or order any printed material.

The Podesta marketing concept works in a similar way to some of the merchant-server sales models, such as Icat. Pix FX, in effect, is a service provider, maintaining control over the server side of the product, but allowing others to buy the client software to use with their own designs and added value. Because companies may wish to use this service for confidential printing projects such as price lists, for some users a wide-area intranet may be the only solution.

Pix FX is already in discussion with a number of countries about offering the server functionality abroad.

Moore Interactive Marketing Solutions

In the fall of 1996, Moore, one of the largest printers in the U.S., announced an on-demand, custom catalog service that it had set up in conjunction with KPN, a Netherlands-based telecommunications company. The service integrates database, print-on-demand and telecommunications technologies that allow companies to develop one-to-one relationships with target customers through real-time creation and distribution of customized print catalogs.

Through an automated phone call, consumers request custom catalogs featuring selected products. The catalogs include articles, advertisements, comparative test reports and dealer addresses related to the products. Via Moore's custom-printing program, which employs a Xeikon color printer, consumers receive their catalogs within 48 hours.

There are three parts to the system:

- * A voice-response system used by KPN, where the consumer dials in and punches a code into the phone to create the desired data sequence. The consumer is charged about \$1.50 for the call. The catalog is shipped to the consumer free. Orders can also be taken via teletext and the Web.

- * A high-speed, variable-data front end, developed by Moore over the past four years, that includes a layout application, a high-speed RIP, a high-speed disk array to hold the variable data and a proprietary interface to the printers. The layout application, called the Moore Variable Color Configuration, can import graphics, photos and layout elements from standard desktop applications and can interface to standard databases.

- * Digital printing equipment. In the Netherlands, Moore uses three Xeikon printers to fulfill requests. The company also uses Indigo printers for the project.

The Dutch program is a cooperative project between Moore and KPN. The cost of the catalogs is underwritten by the companies that advertise in them. For example, a consumer who requests information on home electronics might receive advertising for Sony or Mitsubishi as part of the catalog.

A&A Printers and Digital Graphics

Since first experimenting with connecting the Web to his commercial printing business, Robert Hu, of A&A Printers and Digital Graphics, has continued to develop his application. One current implementation, for handling business cards, is designed for a printer that has an existing relationship with a large client. It involves creating a template for business, through which individuals enter their information through HTML forms. The application then feeds this information to the database publishing system, from which GIF and PDF renditions are created. The GIF preview lets the customer see the way the card will appear in print, while still in the midst of the ordering process. Once the individual approves, the system automatically sends an E-mail message to the customer's manager asking for authorization to go ahead with the print job. Once authorization is received, the system queues the job for a automatic imposition for digital press or offset press and also generates a PDF rendition, which the individual can use to print temporary business cards while waiting for the final box of 250 or 500 printed cards to be delivered.

This application is a good example of how the Web can be used to enhance the business of printing. The medium becomes a conduit for business at the same time that it serves as the vehicle for customers to create and

submit new print jobs themselves, with a minimum of fuss. Customers get better service, and the printer gets more business.

Implications

As we see more products that are truly integrated into Web sites, the front ends for E-mail and FTP services begin to look inflexible and dated. Web-based front ends for printing-whether they are based at a single print shop or at a server distributing jobs to partners around the country or the globe-will become a standard method for job delivery.

Get networked

The trend toward use of the Internet as a front end to printing is supported by a recent study published by NPES, which predicted that in five years most submission and distribution will take place over the Internet.

The NPES study recommends that over the next one or two years publishers "get networked" to take advantage of what the communication medium offers.

Getting networked is easier said than done if you are expecting a simple solution. Data communications is a specialized field, and it is prone to the same problems of equipment obsolescence as the rest of the computer industry. Adding staff with data communications expertise will be as important as having staff with experience in the graphic arts.

The popularity of the World Wide Web has caused increased need for communications bandwidth. A number of solutions either exist now or are on the horizon, and it's important to note that not all methods will lead to the same place. ISDN, for example, is an older technology that will not scale up well. Not all new solutions provide true bidirectional bandwidth, especially those geared toward the consumer market. In general, you can download data much faster than you can upload it with satellite dishes, cable modems and ADSL lines.

A new set of high-bandwidth options will open up after December 1997, when the FCC auctions off licenses for cellular channels dedicated to high-speed data transfer called Local Multipoint Distribution Service (LMDS).

In reality, there is no single answer for all shops. In spite of the Web, you may still need to have multiple methods available for electronic delivery of jobs to satisfy customer demands. A Web site, combined with a dedicated network for large customers and dial-in lines for smaller ones, would cover all of the bases. While a dedicated, high-speed connection to the Internet may not be a practical solution for small shops, Web sites can be remotely hosted and accessed via dial-up or ISDN lines. Devices such as Whistle Communications' Interjet 200 provide simple ways for small shops to provide E-mail and file-transfer services.

In addition to taking in work, a network infrastructure can be used to pass jobs between different locations to balance workloads. Small shops may want to form networks, passing work to others with special equipment.

For printing over the public Internet, a host of concerns are introduced. Security problems can be addressed through the use of firewalls and creation of "extranets," interconnecting networks of business partners.

Watch the Web initiatives

The Web is creating a common infrastructure for business-to-business communications. This has been the case for years in certain industries, and there are well-established international standards, such as EDI (electronic data interchange) for electronic commerce. Major initiatives are under way by companies such as Microsoft, Citibank, IBM, American Express and SAP to enhance use of the Internet as a commercial medium. There is significant reduction in costs by automating basic business processes. For example, Boise Cascade Office Products reduced its cost of processing orders by 50% after installing an Actra system. It's time for both publishers and printers to begin talking about conducting the entire ordering, invoicing and payment processes online. The rest of the business world will be moving in this direction, and, inevitably, the printing industry will follow suit and will want to take advantage of commercial software that serves its purposes.

Conclusion

Two hundred years ago, in the days of Ben Franklin, a printer was also a publisher. For most of this century, printing has been a manufacturing service. Ten years ago, the arrival of desktop laser printers made it possible for personal publishers to create digital masters to handle short

runs just like Franklin did, but without the seven-year apprenticeship. Only recently has digital printing begun to affect offset printing of documents with press runs of more than several hundred copies. The World Wide Web will be a way for commercial printers to extend that business, even as it also feeds the growth of the next generation of printing-digital presses.

As printing continues to become more and more of an automated business, printers will need to work hard to enhance their level of customer service. Four years ago, speaking at a Seybold conference, Hu said that the printing firm that wanted to be in virtual manufacturing (and increasingly that is the direction for many printers) would become in essence-a "Chooser-level icon on the customer's desktop." In the examples cited above, we can see the direction that printers will have to take: the use of the Web to improve communication between printer and client, and the use of the Web to drive digital printing.

The Internet's impact on end-user printing

At the same time that the Web is affecting the commercial printing business, it is changing the way end users print documents themselves. In the long run, it is the changes at the end-user side that will have the most profound impact on publishing. The Internet standards bodies are hammering out standards that will impact the entire computer industry, and related developments by vendors will dramatically change the capabilities end users have for printing documents.

In the past year we've seen a steady increase in the number of output devices that feature TCP/IP connectivity. Initially, this just meant that such printers could be hooked up to your local area network through a different network protocol. The next step was adding an HTML client (such as HP's Web JetAdmin) to fill out the job ticket or check on the status of the print queue. Some vendors are now adding Java clients.

This fall we'll begin to see this capability extended even further in several interesting ways:

- * Web-ready printing, a component of some output devices and an announced direction for Adobe's PostScript 3;
- * Internet Printing Protocol (IPP), a budding vendor-neutral standard for submitting jobs over the Internet to output devices;
- * Printing extensions to cascading style sheets; and
- * More robust batch formatting by end users printing documents delivered to them over the Internet.

The changes described here are new developments that have not yet made their way into the marketplace. We present them to indicate where things are headed, with the understanding that we'll be covering them in more detail in the future as they take hold.

Web-ready printing

Wouldn't it be nice if your output device could just fetch and print pages, without requiring you to download, format and spool them from your desktop? That capability is coming soon, and it will be more than just a convenience to consumers. It will turn printing devices into virtual fax machines, creating a new delivery option for publishers.

Get ready for IPP

In back rooms, by dim monitors, a potential revolution is brewing in terms of how we access and manage printers. The ringleaders include IBM, Xerox, Adobe, Lexmark, Sun, Novell, Sharp, Underscore and Microsoft, but they also have recruited the remaining Who's Who in the industry-Apple, Brother, Data Products, Dazl, DEC, HP, Intel, Kyocera, Netscape, Panasonic, QMS, Ricoh, Tektronix and so on. The band goes by the innocuous name of the Printer Working Group (PWG), but over time it intends nothing less than to sidestep platform-dependent protocols-IPX/SPX, Netbui, AppleTalk, TCP/IP-and promulgate one easy, clean, scalable and Web-savvy means of communicating with heterogeneous printers. Viva la revolucion.

What's being developed is the Internet Printing Protocol (IPP), which is not a product, but an underlying technology that will be submitted to the Net's overarching technology committee, the Internet Engineering Task Force. When adopted as a standard and implemented by vendors, IPP will provide core printing functions over the Web and private networks. These functions include:

- * Querying a printer to determine its characteristics. Does it support PostScript or duplexing, for example?

* Locating printers by capabilities (e.g., color, speed, resolution), geography or name.

* Configuring printers.

* Submitting or canceling print jobs.

* Monitoring the status of a printer or print job.

IPP is independent of hardware platforms, operating systems and page description languages. It can use Web browsers, but "there's nothing in the spec that says you have to have a Web environment," according to Carl-Uno Manros, Xerox's principal engineer of advanced printing standards in El Segundo, CA. Accordingly, different vendors will have varying implementations of IPP. For Novell, IPP will "live" in the network operating system; for Microsoft, in the desktop operating system; for Xerox, in the printer; for Sun, in the print server; for Adobe, in software and in controllers; for IBM, in MVS, InfoPrint Manager, and printers. IPP alone is merely a foundation on which to build applications.

Steve Zilles, manager of standards at Adobe, makes an analogy to the telephone system. The pervasive Uniform Resource Identifier (URI) in IPP technology is the equivalent of a phone number. IPP, in turn, is the mechanism by which you can talk and send documents over the phone network. A URI, it should be pointed out, is similar to a URL, except that the URL is a nonpersistent pointer to a file, whereas a URI is a persistent identification number for devices. (The printer's IP address was not used as its URI because that scheme is tied to one network protocol, and the PWG wants to ensure that IPP will operate over any network.)

Yuletide target. At an analysts briefing on August 27 in Waltham, MA, the PWG announced that it will submit a draft proposal ("Internet Proposal") to the IETF in September and expects to have a Request for Comments by the end of the year. Prototypes are already running, according to the PWG, and products from select vendors will appear by Christmas. The PWG has been working since October 1996.

A slimmed-down specification has recently been proposed by Microsoft and Hewlett-Packard. Originally called Simple Web Printing (SWP), but now officially dubbed IPP level 1, it supports only job validation and submission over the Web and returns all management functions to operating system-specific programs. As a result, many of the sophisticated management features proposed in the IPP will be optional.

Capabilities. The technical proposals of the PWG are available at www.pwg.org/ipp. The capabilities of IPP are still evolving, and all are in the draft stage, meaning that the general public cannot yet test products firsthand. Here, nonetheless, is a sample of the features that are fully documented on their Web site. Note that the initial products are not likely to have all of these features.

IPP will show you a list of jobs, so that if 400 jobs are ahead of yours, you can select another printer. It will report errors and let you resubmit the job if you so choose. It will understand PostScript, PCL, PDL, IPDS, EscapeP and Interpress languages, but it also will print from popular applications, such as Word or PowerPoint. If you know the location of a file that you want to print, instead of sending the document to the printer, you can send only the reference to the document—a Web address for example—and IPP will fetch the file. It also will let an administrator set up access control lists, defaults, templates or charge-back invoices. Both revisable and final-form documents can be distributed.

The user can specify whether the job should be printed anyway that's possible ("just get it on paper"), or canceled if it cannot be printed exactly as specified. Stapling or binding are among the supported attributes.

Despite the tendency to revamp printing as we know it today, the PWG is chary of change for the sake of change. IPP will work with existing firewalls and use existing security protocols for authentication and authorization. If IPP encounters the Unix line printer daemon (LPD), it remaps the print command. If it detects a job intended for a legacy printer, which knows nothing about IPP, the job is sent to a server that "talks to" that printer. If you fail to upgrade your browser, it will still work with IPP, because an HTTP 1.1 server can respond both to today's HTTP 1.0 browser and to the new HTTP 1.1 browsers, such as Microsoft Internet Explorer 4.0.

Extensibility. IPP is extensible in several ways—by the PWG

officially, by a registered member of the group or by an individual site, whether associated with the group or not. Each type of extension is recognized by the architecture and treated accordingly.

The ease with which IPP can add new components derives from the adoption of an object model. IPP objects include the printer, job and document, any of which attributes can be queried. An output device's attributes include:

- * Its URI, or numeric identification number;
- * Its name, with text attributes, which easily can be localized for foreign countries;
- * Its state (whether the printer is running, stopped or jammed);
- * Whether it is accepting jobs;
- * The default machine languages it accepts; and
- * Which human languages (French, Russian, Japanese, etc.) are supported.

Job attributes include a job identifier, the job owner's identity and the job stage (pending, processing, or completed).

Document attributes include the document name and the page description language to be used.

Proceed with caution. IPP will facilitate distribute-and-print publishing on the Web, but it also will make it easier for spam artists to send a higher quality of junk fax, once the printer's URI is made public. Security features are built into the protocol, but network administrators will have to know how to throw the right "switches."

Meanwhile, parallel activities are going on in groups such as the Salutation Consortium and the Internet Fax Group. There is no significant coordination between the groups, although some IPP members belong to more than one standards body.

Companies such as Xerox (job ticketing), Dazel (print management), Novell (Novell Distributed Print Services), and Adobe (PostScript 3) already have built or are building products in some of the same areas covered by IPP. To this extent, they will lose some of their uniqueness—"That's life," in the words of Steve Zilles. It was pointed out, however, that PWG members could enlarge their market base on the front end (the consumers who are printing documents) and benefit from a significantly increased number of compatible printers on the back end. Each vendor thus can concentrate on what it does best.

Typically, the Web is viewed as a threat to print, not an ally, and certainly not as a beacon for hardcopy developers. Those assumptions will have to change.

Adobe's PostScript 3 plans

Announced this past April, Adobe PostScript 3 is the latest iteration of Adobe's printing system. But at its announcement, Adobe revealed that PostScript 3 will add more than just a few new PostScript operators. Part of the package that Adobe will be offering to output device suppliers is a Web server that goes with the RIP, for the express purpose of printing documents off the Web.

Because the PostScript 3 RIPs can read PDF, users will be able to send a URL to a Web-ready printer. For a PDF document, the output device will download and print it without it ever being sent to the user's workstation. We disagree with Adobe's claim that this will reduce traffic on the Internet or the LAN (the PDF still has to be downloaded to the user's site, after all, and most printers will be connected to the net by a LAN), but without a doubt it will free users from having to wait for these typically large files to download to and print from their own machines.

EFI out first. This summer Electronics for Imaging (EFI) became the first Adobe OEM to deliver such capability. Its WebTools package uses a Web and Java server to offer remote-job and output-device management. End users use their browsers to locate the device. After entering their password, they download a Java applet that lets them initiate a job, see a job's status and even reprint jobs with new job parameters without resending the original file.

The Web-ready component of EFI's server enables users to instruct the output device to download PDF, GIF, JPEG and PostScript files.

What will it provide? As with IPP, the PostScript 3 Web-ready printers will open up interesting possibilities for publishers that produce publications, articles or reports in PDF. Today, documents are being

"pushed" out to users' E-mail in-boxes, but in the future, publishers will have the option of sending them to a printer. The quality, though typically a far cry from offset, will nonetheless be a dramatic improvement over facsimile, especially for customers with 600-dpi printers. Adobe hopes that such Web-ready printers will be another boost to the adoption of Acrobat and the PDF format, which has already become the de facto standard for electronic pages, and is second only to HTML as the preferred format for transmitting publications to customers.

In certain segments of publishing, we expect that this boost will happen. It is a natural for journal publishing, for example, where individual articles can be downloaded by subscribers or ordered by nonsubscribers on a pay-per-view basis, and customers can be confident that the document they are printing is the same one that appeared in the print journal.

It is also a convenient supplement to HTML for other types of short technical documents, such as data sheets, that customers often want to print for reference. As the use of variable data in page makeup programs becomes more commonplace, we expect to see growth in PDF output of customized documents ordered over the Web. This would include not only data sheets but also longer documentation, such as custom manuals that reflect a customer's configuration. (Database Publishing Systems offers a product for doing this, with FrameMaker or Interleaf as the page makeup program.) If the product being ordered is software delivered online, then a natural complement would be a manual delivered as PDF to the customer's output device. This method would also work for purchase orders and other forms that are typically delivered by fax.

But what about HTML? In order for the printer to successfully print Web pages, it must handle HTML as well as PDF. Adobe plans to build into its PostScript 3 product family an HTML interpreter that will format Web pages for printing, much like today's Web browsers do.

Details on this product, announced last April, are still sketchy, and none of the first PostScript 3 machines have this feature. In April, Adobe said that its first HTML interpreter would handle HTML 2 with "some extensions." It would not handle HTML 3.2, and it would not support style sheets. When we asked for an update in late August, an Adobe spokesperson confirmed that the Web-ready features were "still under review" and that no new promises had been made. At this point, Adobe is not saying when we might expect to see a Web-ready PostScript 3 printer, but we expect to see the first ones announced in the next six months. Based on Adobe's present description of the capabilities planned for its HTML interpreter, which we'd describe as barely adequate, we see an obvious opportunity for Adobe's OEMs to differentiate themselves on how well they add value to the HTML formatting and printing process.

At the same time, because of the work of the Printer Working Group mentioned above, vendors are free to pursue Web-ready printing independent of PostScript 3. An HTML formatter could be built into a print server that feeds multiple devices as easily as in a stand-alone RIP.

Reformatting on the fly

On a different, parallel front, there are people who are working on improving the capability of software-running on servers or on desktops to reformat Web documents to make them look better when printed on paper. These developments complement IPP in that they strive to produce better documents before you send them to the output device. Depending on how well they succeed, they could eventually alleviate the need to preformat documents altogether.

This last area of change is, in some respects, the one we'd like to see the most, because it would do more than any other to dramatically improve the typographic quality of Web documents.

Efforts outside of the browsers

We'll look first at two products that run outside of the conventional browsers, before focusing on efforts to improve the formatting that occurs within the browsers themselves.

Canon's WebRecord. A year ago Canon introduced a Web printing capability based on its own formatter. Developed by Canon's Australian research affiliate, Web-Record prints multiple Web pages at reduced size on a single sheet (see photo). The user specifies the Web addresses to be printed and which files to print from each address: only the home page, all

linked pages, all directly linked pages, all pages in the same directory or subdirectory, or all pages on the same host. WebRecord then generates a list of pages, which can be reordered by dragging and dropping items in by name.

To simplify the task of specifying which URLs to print, the system tracks the user's access to Web addresses through a browser and lists them on the queue of jobs that are available for printing, relieving the user of having to recall and type the addresses.

From the queue, the user selects the jobs to be printed, specifies the number of columns to appear on each page and chooses the type size for text to be printed. The system then reformats the documents for printing or display. (Graphics are scaled automatically according to the page size.) Pages sometimes break in the middle when they appear at the bottom of a column, but they still provide a convenient record of the contents. The program also adds value by collecting all of the URLs within the pages being printed and listing them at the end.

As its name implies, WebRecord provides a good record of a user's Web activity, while cutting down drastically on the number of pages needed to print Web files, which otherwise would default to the browser's single-column, large-font presentation.

WebRecord runs under Windows and is available through Canon in Australia and in the U.S. The price is \$100 (Australian).

Archetype's NuDoc. One of the most promising technologies in this arena is Archetype's NuDoc, recently acquired by Bitstream. The engine, based on Archetype's extensive experience in page composition, is different from most formatters because it uses design "models." Models enable the designer to specify styles in parameters that are flexible, not fixed. They give the formatting engine enough information to create pages, while still allowing it to take into account the result of the H&J process on variable text.

For example, with NuDoc, a designer can specify that a particular type of element, say a product description, is boxed by a 1-point rule that is 1 pica away on all sides from a block of justified text. The box rule can be specified as part of the paragraph format, but it is drawn only after the text is composed. This makes it unnecessary for a page make-up artist to draw boxes manually while still ensuring that—regardless of the length of text—all of the product descriptions are handled consistently.

This example is fairly simple—the product actually handles much more sophisticated rules—but implementing rule-based pagination of this type on the fly requires a sophisticated formatter that does not occupy too much code yet still runs fast on desktop machines. To date, Archetype has succeeded in gaining the attention of a few developers in newspapers (first, SII and more recently, Atex), but with this product, it has yet to crack even the professional publishing market. We suspect that the time will soon come when its ideas, if not its technology, will reach the mass market through developments on the Web browser front.

Printing extensions to HTML style sheets

Over the summer, the working group within the World Wide Web Consortium that is developing cascading style sheets (CSS), produced a set of proposed printing extensions. These, when used in conjunction with CSS, are intended to enable publishers to send print-specific instructions along with their HTML Web documents.

The initial draft, published in June, covers just three areas:

Page breaks. Authors can specify page breaks before or after HTML elements, as can be done in page makeup programs. This is an obvious first step, one that goes nicely with the media-dependency addition described below.

Page boxes. A style sheet can specify page boxes that describe the printable area on a page. These can be different for verso and recto pages, and crop marks may be added. Because there are no HTML elements that correspond to a page, the page box is added as a declaration to the entire document, using the "at-rule" extension mechanism of CSS.

Although this addition still does not provide multiple-column layouts, it does give the browser some additional information for how to cope with documents that don't fit the page size of the target printer. Pages can be scaled or rotated to fit, for example, or the browser could prompt the user for a decision. As with other aspects of style sheets, the

specification tells only how to insert the instructions; it leaves implementation up to the browser vendors.

Media dependencies. Portions of an HTML style sheet can be assigned to specific media. The current list includes screen, print, projector, Braille and aural. This allows the designer to assign a style to a specific media type, or to make a single style sheet the covers multiple media, a welcome change from CSS 1, which requires separate style sheets for each media type.

Recognizing that "the best Web pages for screen display make the worst Web pages for print," the printing extension authors conclude that "the most active Web pages must be converted to static pages prior to printing. If this is not done just right, the intent of the author may be distorted and critical information may be lost."

The authors suggest that the solution, in situations where both media must be supported, is for the author or publisher to provide two versions—an active one for the screen and a static one for print. To support that, a new value "alternate" is proposed for the "REL" attribute of the link element. The intent is to provide a consistent method for attaching these static print versions to Web pages, so that browsers will automatically fetch the print version when the user chooses to print a Web page. The attached document need not be HTML; the browser could easily invoke a plug-in or Helper application to print PDF, PostScript or other types of files.

A first step. The printing extensions will not be all that a good formatter will need to produce good-looking print documents, but they are steps in the right direction, and the CSS working group is trying to move in steps that browser vendors can easily incorporate in their next software releases. When used in conjunction with style sheets and the next generation of Web browsers, the printing extensions give Web publishers some additional controls that should help consumers get, at least, printed output that looks better than what we get from today's technology.

In future extensions, the CSS group hopes to tackle multiple columns, page collections and additional page and type properties (e.g., headers, footers, sideturns, kerning and vertical justification). The latest version of the printing extensions proposal can be found at:
<http://www.w3.org/pub/WWW/TR/WD-print>

An XML/DSSSL alternative? For many years, the SGML community struggled to devise a style sheet language that would be robust enough to handle the wide variety of documents encoded in SGML. Several years ago, it at last succeeded in producing an ISO standard—the Document Style and Semantics Specification Language (DSSSL)—but it has proved too unwieldy for vendors to implement and has therefore seen little use. Since the creation last fall of XML, or simplified SGML, there has been interest in using a subset of DSSSL as a style sheet mechanism for Web documents. Last month excitement swirled around the rumors that such a proposal (from none other than Microsoft) was imminent, but it failed to materialize at the XML developer conference in Montreal (see page 3).

Although we haven't yet seen a concrete proposal, a subset of DSSSL could be a giant step forward for Web style sheets. DSSSL covers all the bases needed by a robust formatting engine, and we think it makes sense to have such a language to go along with XML, the language for creating Web documents with your own tags.

How soon will browsers H&J?

Today's Web browsers output at the sophistication level of PostScript word processors in 1986. At that time, Word, WordPerfect and XyWrite could specify PostScript fonts, sizes and character attributes, as well as leading (so different levels of heads could be easily distinguished), but they did not handle multiple columns, they did not provide true H&J and they lacked control over interword and intercharacter spacing.

It took only a few years for the public to embrace, indeed expect, such functionality at the desktop level for making printed pages. But in this decade, consumers have been so enamored of the low cost, fast speed and excellent navigation of the Web that the browsers' comparatively crude handling of type has been viewed as an acceptable compromise.

We think it's reasonable to expect that Web browsers will grow up the way word processors did, to the point where they at least handle the basics of page composition. Netscape, in an strategic plan outlined earlier this

year, stated its intention to create a rendering engine, code-named Apollo, whose formatting capabilities would rival **desktop publishing** tools. Microsoft has not yet made such grand pronouncements, but to date it has shown an uncanny ability to counter every move that Netscape makes. It will take only one of these vendors, showing that H&J makes a difference, to bring this issue back to the fore.

The difference it would make. Ultimately, we need a smart H&J program that can accept tagged input and style sheets and produce good-looking results on the fly. By this we mean dynamic page composition-reformatting the document, either at the end-user workstation or at the printer itself-at the point at which a document is printed. This technology is the most difficult to implement, but it is the most exciting, because it opens up many new and interesting possibilities for end-user printing.

We alluded to this earlier in describing Web style sheets. As envisioned by its creators, the Web browser will reformat the document according to a style sheet (created by the publisher) that is designed specifically for printing. Until the browsers have a decent formatting engine, rich style sheets are a moot point, and publishers seeking to offer their customers high-quality output will have to opt for attaching static renditions, or follow the conventional model of mass printing before distribution.

Conclusion

Without a doubt, the Internet is galvanizing the computer industry to pay attention to printing. Documents may be delivered electronically, but people still like to read from paper. To quote the draft of the Printing Extensions to CSS, "No one has yet invented a cheaper, more reliable, more portable, more convenient, or more universally acceptable 'reader' of information than the printed page . . . Contrary to conventional wisdom, the advent of the Web is very likely to cause an overall increase in printing rather than its demise."

Taken together, the developments highlighted in this article will be important in bringing high-quality printing from the Web to the desktop. If publishers (both corporate and commercial) could count on the formatter to do a decent job of recomposing the document for the target printer, there would be less need to cast its original page formatting in stone (such as is done with Acrobat). The result would be faster downloads and, potentially, formatting that is better adapted to the target output device. A document that originates in portrait mode could have design models for landscape mode (screen viewing); U.S. and international letter-sized paper; and maybe one for printing two pages per each side of paper, as can be done with WebRecord and desktop presentation programs. An application at the desktop could give users better control over how they want their Web documents are printed and could accommodate those with vision and hearing disabilities.

To the extent that software can automate the craft of page composition, and digital printing technology can make it convenient to print documents on demand, when and where we want them printed, the market will gravitate toward desktop printing and the new paradigm of Web-ready printing. The results may not be as pleasing as those produced in the past by hand by master typographers and pressmen, but economics and the seemingly insatiable desire to receive information more quickly will propel the printing industry forward in its march toward an all-digital workflow.

By now, most publishers produce their document masters electronically, and increasingly these page masters will be sent to digital output devices to create printed pages. The harder challenge still facing much of the industry is how to adapt to a new paradigm, one in which the master document-edited, proofread and published-doesn't take the form of print until the customer pushes the print button.

New at Print '97

A number of vendors introduced Web components to print-management software at Print '97, taking place this month in Chicago. We haven't seen them yet, but here is a brief rundown of some of the current products providing Web-based job submission or tracking.

Logic's WebPartner. Logic's WebPartner software uses the Web to give print buyers more control over their orders and jobs. It enables a printer's customers to gain direct access to product and job information over the Internet. It also offers an online method for placing orders and

obtaining price quotes.

The initial suite includes quote requests, history and status reporting, and orders for finished goods. Other functions, including direct order entry by the customer, are in the works.

Printers that have their own network server and Internet connection will be able to run WebPartner directly. Companies with Internet access but no Web page can use a special E-mail-only version of WebPartner for quote requests and orders. A company that isn't on the Internet at all will be able to offer WebPartner to its customers by way of Logic's home page, where a special link to check passwords will bring up WebPartner's menus and forms.

Pace Systems Group. Pace has added an Internet Window to its print-management system. The Internet Window includes Web-hosting services, URL registration and the ability to send files over the Internet for printing.

The system also allows customers to receive price quotes, place orders, inquire about job status and check on their finished goods inventory.

Programmed Solutions. In version 10 of its print-management software, which is now a 32-bit Windows application, Programmed Solutions has added Internet connectivity. The system handles multiple simultaneous estimates and reports, and it permits customers to access information about jobs via the Internet. Its WebLink module allows customers to enter requests for price quotes, determine job status and make inventory-control and fulfillment inquiries.

Streamline Solutions. Streamline Solutions is offering a print-management system that enables customers to access job status information, request price quotes and have their orders fulfilled over the Internet. For reprinting orders, customers can select items from a list of their existing jobs and specify a location for mailing.

Tailored Solutions. Tailored's job-tracking software for prepress and sheet-fed lithographic printers, LithoTraxx, now supports access via the Internet. LithoTraxx allows customers to access job status information and request quotes over the Internet. The system can also utilize Internet browsers as clients, allowing users to access the system.

Vercom Software. The developer of the Primac business management system for medium to large printers, Vercom is introducing Internet connectivity, which enables customers to access data, such as paper inventory, finished items, job and order status and shipping information.

UniData, which supplies the relational database for the system, is using Java-based scripts to access the information in the database and serve it on the Web. Log-in and security features are supported. Future plans include adding support for the submission of job specs to generate estimates or quotes, and real-time job status viewing, information for which will be fed via bar codes from the plant floor.

DAZEL: PDF Makes the Web Another Output Device

To see where corporate Internet printing is headed, consider the firm Dazel. The latest iteration of its sophisticated output server spools documents to an intranet as easily as to a print output device.

Dazel's software manages computer output from mainframes, Unix and Windows NT and runs on all three platforms as both server and client. From any of these platforms, an authorized user can choose a printer, fax machine, E-mail address or pager connected to one of the other platforms. Because Dazel's Output Server manages each device, separate device drivers do not have to be installed, cutting down on administrative overhead.

Dazel recognizes the main output formats-AFP, PostScript, PCL, PDF, Metacode, XES (Xerox), HTML, FrameMaker MIF and binary-and, on the basis of them, automatically routes jobs to the appropriate printer. If you're in a large corporate environment, where, say, a sales or accounting report has to go to remote printers of different types, and you haven't a clue what the printers are or what they need, Output Server will take over. This software delivers the job, monitors the job as it's being performed and then sends a report when the job is complete. If the printer dies in the middle of a job, Output Server will resume from the last complete page. If the problem cannot be corrected, Output Server will page or E-mail any designated administrator. Meanwhile, the job can roll over to a fax machine or the next closest printer, all without human intervention. This

kind of functionality, offered today by Dazel, was addressed in the original IPP spec, but it has since been redefined for more modest goals (see page 14).

Ever wasted your time printing a document and then faxing it? Many products let you send a fax from your computer, but printing and faxing are a two-step operation. What if someone else in your organization needs an E-mail of the same document? A third step is needed. Still more steps are needed to post the document to an intranet. Dazel simplifies the process by letting you print, fax, E-mail or publish a document to the Web, or use any combination thereof, by prearranged user and document groups that can appear as a single icon. In this way, separate functions that can be accomplished, say, with Win-Fax or Lotus Notes, are integrated into a management system.

MetaWeb

Dazel has three products: Output Server, Dazel Express and MetaWeb. The first two operate as client-server. MetaWeb is an intriguing new product that is built on Windows' publish-and-subscribe model. On one side of the communication is a Web server utilizing NSAPI (Netscape's API) or ISAPI (Microsoft's API). On the other side of the communication, you hook up MetaWeb to Output Server in the same manner as you would connect a printer to Output Server. MetaWeb then passes HTML to standard Web browsers. This configuration adds security that is not found in the browser alone, for only authorized clients have MetaWeb and access to Output Server. MetaWeb, unlike Output Server, retains documents for an extended period, using Verity's search engine to index the documents for retrieval.

What gets to the MetaWeb from the server is text, HTML or PDF. MetaWeb puts an HTML "wrapper" around the PDF so that you can view the document from a browser. When you access the document, it automatically fires off the Acrobat viewer.

Target market

Dazel is aimed squarely at large corporations in which output-management concerns justify the \$60,000 license for 1 to 150 users. This market presupposes multiple locations and multiple formats, running on multiple platforms.

The appeal to this market is not publishing per se. Internal documents and reports may be highly formatted, but corporations don't treat them the same way as "published" documents for external consumption. Dazel's ability to be the back end for enterprise-wide applications (e.g., SAP R/3, Oracle Application Suite) or the front end for enterprise utilities (e.g., CA Unicenter and HP Open View) is what makes it attractive.

Dazel has been doubling its revenues since it was founded in 1993. Revenues in 1994 were over \$800,000; in 1995, \$4.5 million; in 1996, \$9.7 million; and in 1997, Dazel expects millions in the high teens or twenties.

Conclusion

Dazel's appeal is to the customer who has a big problem and needs to solve it yesterday. It offers tremendous functionality at a high price.

While Dazel is meeting the needs of a select customer base, its high-end approach may cut it off from the potentially far larger number of users in smaller corporate and professional settings. Dazel's long-term strategy includes plans to diversify its product line, but if IPP is adopted by the broad market, the firm may cede the middle to low end of the market to companies such as Microsoft, Novell and Adobe, who don't mind selling workgroup solutions.

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A method of managing print files in an electronic prepress system, and system using the method
Verfahren zur Druckdateienverwaltung in einem elektronischen Druckvorbereitungssystem, und System unter Verwendung des Verfahrens
Procede d'administration de fichiers d'impression dans un systeme electronique de pre-impression, et systeme utilisant le procede

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ABSTRACT EP 882580 A2

A system and method for processing raster data including at least one input computer terminal (45) for creating postscript data, at least one Raster Image Processor (34), (RIP), for processing the postscript data into raster data, and PrintDrive (41) for managing and controlling the workflow of image files to a plurality of user selectable output devices (58,59) including image files containing raster image data. The present system operates on a general purpose computer platform that runs Windows NT.

A method of tracking, queuing, storing and processing raster data utilizing a Graphics User Interface for a PrintDrive in an **electronic prepress** system which creates **virtual** engines thereby allowing the entry of job data for print engines that are off line.

A system and method comprising a raster flat manager based upon a standard PC platform running the Windows NT operating system. A Raster Image Processor, (RIP), sends compressed data to the PrintDrive via Fast Ethernet. PrintDrive software provides buffering of raster data, while also offering a graphical user interface which allows the user to view the jobs on disk, as well as, the ability to manipulate and control the timing and destination of the output jobs.

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21/TI/1 (Item 1 from file: 348)

DIALOG(R)File 348:(c) 2000 European Patent Office. All rts. reserv.

COMPUTERIZED PREPRESS
ON-LINE DRUCKVORBEREITUNG
PREPRESSE INFORMATISEE

21/TI/2 (Item 1 from file: 349)

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COMPUTERIZED PREPRESS
PREPRESSE INFORMATISEE
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File 15:ABI/Inform(R) 1971-2000/Oct 11
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File 275:Gale Group Computer DB(TM) 1983-2000/Oct 12
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File 696:DIALOG Telecom. Newsletters 1995-2000/Oct 11
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File 47:Gale Group Magazine DB(TM) 1959-2000/Oct 12
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File 624:McGraw-Hill Publications 1985-2000/Oct 10
(c) 2000 McGraw-Hill Co. Inc

File 621:Gale Group New Prod.Annou.(R) 1985-2000/Oct 12
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File 636:Gale Group Newsletter DB(TM) 1987-2000/Oct 12
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File 634:San Jose Mercury Jun 1985-2000/Oct 05
(c) 2000 San Jose Mercury News

File 370:Science 1996-1999/Jul W3
(c) 1999 AAAS

File 148:Gale Group Trade & Industry DB 1976-2000/Oct 12
(c)2000 The Gale Group

File 553:Wilson Bus. Abs. FullText 1982-2000/Aug
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Set	Items	Description
S1	18749	(SOFTWARE?? OR APPLICATION?? OR COMPUTER? OR SERVER? OR ON-LINE OR ON(W)LINE OR WEB OR INTERNET OR PROGRAM?? OR AUTOMAT? OR INSTANT? OR ELECTRONIC OR E OR VIRTUAL OR DIGITAL) (3N) (PRE-PRESS? OR PRE(W) (PRESS? OR PRINT?) OR PREPRINT?)
S2	99499	(ONLINE OR ON(W)LINE OR WEB OR INTERNET OR E OR VIRTUAL) (3-N) (PRINT? OR LITHOGRAPH?)
S3	1347015	(CREAT? OR FILL? OR ENTER? OR EDIT? OR MODIF? OR AMEND? OR REVIS? OR POLISH? OR AUTHOR? OR PRODUC? OR ORIGINAT?) (3N) (TEMPLATE? OR FORM? ? OR DOCUMENT? OR FILE? OR TEXT? OR IMAGE? OR GRAPHIC? OR PICTURE? OR PHOTO? OR DRAWING OR WYSIWYG)
S4	327425	(DOWNLOAD? OR SUBMIT? OR UPLOAD? OR TRANSMIT? OR TRANSFER? OR SEND? OR RECEIV?) (3N) (TEMPLATE? OR DOCUMENT? OR FORM? ? OR FILE? OR EDIT? OR APPLET? OR PLUG(W)IN? ? OR PLUGIN? ?)
S5	99160	(TRANSLAT? OR FORMAT? OR INTERPRET? OR PREP? OR CREAT? OR - CONVERT? OR TRANSFORM? OR CHANG? OR SET? OR CONFIGUR? OR ARRANG? OR TRANSLAT? OR PROCESS?) (5N) (FILE? ? OR FORM? OR DOCUMEN-

T? ? OR TEMPLAT?) (5N) PRINT?

S6	1649	S3(S)S4(S)S5
S7	220	S1 AND S6
S8	2434	S1/TI,AB,DE
S9	17	S8 AND S6
S10	12	RD (unique items)
S11	33	S2 AND S7
S12	16	RD (unique items)
S13	43	WYSIWYG(3N)APPLET? ?
S14	0	S13 AND S1
S15	0	S13 AND (PREPRESS? OR PRE(W)PRESS?)
S16	96	KINKONET
S17	51	RD (unique items)
S18	51	Sort S17/ALL/PD,A
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10/TI/1 (Item 1 from file: 15)
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Digital & prepress links: Focus on digital

10/TI/2 (Item 2 from file: 15)
DIALOG(R)File 15:(c) 2000 Bell & Howell. All rts. reserv.

Digital prepress leaders set the pace

10/TI/3 (Item 3 from file: 15)
DIALOG(R)File 15:(c) 2000 Bell & Howell. All rts. reserv.

Diwan, Kodak Win Big Middle East Contracts

10/TI/4 (Item 1 from file: 810)
DIALOG(R)File 810:(c) 1999 Business Wire . All rts. reserv.

Network Peripherals Launches Graphics Prepress Marketing Program with
Vision Group Distribution Agreement

10/TI/5 (Item 1 from file: 275)
DIALOG(R)File 275:(c) 2000 The Gale Group. All rts. reserv.

The power of the digital press. (Adobe FrameMaker 5.5, Adobe PageMaker 6.5,
Corel Ventura 7 reviewed) (includes related articles on beta version of
Quark XPress 4.0, prepress tools) (Software Review) (Evaluation)

10/TI/6 (Item 2 from file: 275)
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Prepress: the OPI option. (Open Prepress Interface)

10/TI/7 (Item 1 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.

10/TI/8 (Item 1 from file: 148)
DIALOG(R)File 148:(c)2000 The Gale Group. All rts. reserv.

The role of content management in a digital production environment.

10/TI/9 (Item 2 from file: 148)
DIALOG(R)File 148:(c)2000 The Gale Group. All rts. reserv.

Software smoothes on-demand service; Deluxe's Printovation unit goes 100%
digital via use of Open software from Luminous.

10/TI/10 (Item 3 from file: 148)
DIALOG(R)File 148:(c)2000 The Gale Group. All rts. reserv.

Adobe Systems to Provide a Virtual Network For Electronic Prepress
File Transfer and Communications.

10/TI/11 (Item 4 from file: 148)
DIALOG(R)File 148:(c)2000 The Gale Group. All rts. reserv.

Micropublishing developments. (prepress imaging - computer-aided publishing)

10/TI/12 (Item 1 from file: 553)

DIALOG(R)File 553:(c) 2000 The HW Wilson Co. All rts. reserv.

VUE/Point: publishers tell it like it is.

AUGMENTED TITLE: conference for prepress professionals held in Arlington, Virginia

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10/9/9 (Item 2 from file: 148)
DIALOG(R) File 148:Gale Group Trade & Industry DB
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09006978 SUPPLIER NUMBER: 18686492 (THIS IS THE FULL TEXT)
Software smoothes on-demand service; Deluxe's Printovation unit goes 100% digital via use of Open software from Luminous.
Graphic Arts Monthly, v68, n9, p69(2)
Sep, 1996
ISSN: 1047-9325 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 1121 LINE COUNT: 00095

ABSTRACT: Printovation is able to more effectively meet its customers' needs with the help of Luminous Corp's Open **digital prepress** workflow management **software** that permits customers to make on-demand orders for print jobs. Open permits Printovation's customers to place their print orders using a fully digitized process that enables them to make their orders directly from their personal computers.

TEXT:

Deluxe's Printovation unit goes 100% digital via use of Open software from Luminous.

It was a happy coincidence when Kevin Heimer, operations manager for Printovation, seeking a product to simplify prepress automation, learned that the Open digital prepress workflow management software was about to be field tested. As a result, in early 1995, the new on-demand print service of Deluxe Corporation, St. Paul, Minn., the nation's largest check printer, became one of the first users of the software.

Recalls Helmer, "We had already invested heavily in our proprietary front-end Printovation system for taking in print order files, but when it came to prepress, we needed an automated process that would be simple, easy to train people on, and commercially available. We'd been tracking the development of Open, and the field-test timing fit our needs quite nicely."

Open is one of a family of digital prepress PostScript software products for Macintosh, Power Macintosh, and Windows NT users, designed to automate traditional manual production processes as well as to manage the entire prepress workflow.

The products are offered by Luminous Corporation, Seattle, a privately held company that was spun off from Adobe Systems Inc. last year. Luminous owns or licenses development, marketing, and distribution rights to Open, TrapWise advanced color trapping software, PressWise electronic page imposition program, and Color Central Open Prepress Interface (OPI) print and image server software.

Luminous has exclusive worldwide distribution rights to the Adobe Virtual Network file transfer software package and Print Central, plus it has the license to Adobe's Configurable PostScript Interpreter (CPSI) technology.

Open software allows users to define what tasks the program will perform by setting up linked processes with graphical production templates called Workflow Pipelines. Users then drag and drop icons representing different applications to their places in the Pipelines.

Each Pipeline consists of any user-specified combination of linked processes. Users can even have custom settings for each process. Workflow can then be set to pause at specific steps for manual operations, and to pass through others, using a set of default or predefined operational steps.

Renee Melancon, prepress operator, created the Open Pipelines for Printovation's print products; she is responsible for their upkeep and for adding Pipelines whenever the print service needs to offer new products.

Melancon used Open to create "hot folders," assigning an application such as PressWise as one of the task applications, then attaching the appropriate application template files. Each time a particular job comes through, all she needs to do is put the PostScript file into the appropriate hot folder and Open does the rest, communicating with the application to create a signature or other file, ready to go to press.

"Different hot folders correspond to the products we offer," explains

Melancon. "Open watches the hot folders, and when a PostScript file is placed in one, it automatically sends the job through the appropriate prepress Pipeline. With a hot folder and Pipeline for each product, all I have to do is click, drag, and drop."

When Deluxe launched its Printovation print-on-demand software ordering tool early this year, Helmer says Open enabled the print service to handle the heavy volume of PostScript files that started coming in.

"The program allowed us to set up a digital production prepress environment much faster than we could have any other way, enabling us to handle hundreds of orders every day," notes Helmer. "Also, because the Printovation service was a start-up business, we needed to be conservative in our investment; Open helped us avoid the added hardware and personnel costs of custom-built or proprietary prepress automation systems."

Printovation is one of Deluxe's electronic services that is revolutionizing the way people order printing by giving them access to state-of-the-art printers and printing services directly from their desktops.

A variety of services

It serves small office and home office users, graphic services companies, and businesses of all sizes, providing printed products ranging from business cards, postcards, and greeting cards to flyers, two- and three-fold brochures, and even small booklets.

"In short, we serve any Microsoft Publisher or Word for Windows user who needs professional printing, even in full color, without the hassle," notes Helmer. He calls the service a "print shop on a desktop" because it allows users to order professional printing, including short-run spot- and full-color work as well as black-and-white jobs, directly from their personal computers.

Customers **create** a **document** on their PCs, with ready-made **Printovation templates** and their own Microsoft Word or Microsoft Publisher software, then use **Printovation** to select their printing, binding, mailing, and delivery choices. Customers can **send** their **documents** and orders to Deluxe via free secured modem transfer (depending on their system configuration), or can elect to have their disks picked up and delivered via overnight service to Deluxe at no charge.

Printovation Version 1.1, launched in February, works with Microsoft Word and Publisher for Windows 95, while Version 1.2, released in June, works with Word and Publisher for Windows 3.1/3.11.

With Open software, PressWise page imposition, and digital output devices from Indigo, Xerox, and Eastman Kodak, all connected via Ethernet, the Printovation shop is now virtually 100% digital.

"We have a flexible, simple, and relatively inexpensive digital production prepress system, which would have been far more expensive to achieve with proprietary systems," explains Helmer.

Plus, the shop still would have faced costly, time-consuming programming changes every time a requirement for a new type of printed product came along.

"With Open, I need to create a product Pipeline only once, not for every job," says Melancon, who adds that Printovation is evaluating other Luminous digital prepress products.

"The software is very intuitive and easy to use," she continues, and, speaking from a business standpoint, Helmer notes, "I'm pleased with the plug-and-play nature; the learning curve and training times are far shorter than with proprietary systems."

The company's Deluxe Direct marketing unit sells direct-mail checks to households and small businesses; markets software, forms, specialty papers, and other products to small businesses; provides tax forms and electronic tax filing services to tax preparers; and sells direct-mail greeting cards, gift wrap, and related products to households.

Deluxe Financial Services provides check printing, electronic funds transfer, and related services to the financial industry, retailers, and state governments.

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SPECIAL FEATURES: illustration; chart

COMPANY NAMES: Printovation--Services; Luminous Corp.--Products

INDUSTRY CODES/NAMES: ARTS Arts and Entertainment; PUBL Publishing;
BUSN Any type of business
DESCRIPTORS: Printing industry--Services; Computer software industry--
Products
PRODUCT/INDUSTRY NAMES: 2750000 (Commercial Printing); 7372419 (Business
Software (Micro))
SIC CODES: 2750 Commercial Printing; 7372 Prepackaged software
FILE SEGMENT: TI File 148

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DIALOG(R)File 275:Gale Group Computer DB(TM)
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02110082 SUPPLIER NUMBER: 19756197 (THIS IS THE FULL TEXT)
Roll over, Gutenberg: how the Web is changing printing. (includes related articles on innovative print-management software at Print '97 conference and on Dazel's Output Server and Express client-server applications and MetaWeb Internet/Web server software) (Internet/Web/Online Service Information)
Edwards, Stephen; Kingsley, Lawrence; Votsch, Victor; Walter, Mark
Seybold Report on Internet Publishing, v2, n1, p5(16)
Sep, 1997
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 12468 LINE COUNT: 00958

TEXT:

Much has been said and written about the possible threat to print posed by electronic media, but, as firm believers in the value of print, we see a very different scenario-the Web is increasing demand for print, but it will have a profound impact on the way publishers and consumers approach the printing of documents. The Web will inevitably change the printing business, just as it has already begun to change irrevocably the publishing business.

We are not forecasting the immediate decline of offset printing. The changes in printing will take time and will not immediately affect the way long press runs of large-circulation serials and books are produced. But the Net will accelerate the use of digital printing, which already permeates the corporate setting. It will fuel continued growth in consumer (home and small office) printing. It will encourage on-demand printing of long documents, and it will play a role in the adoption of digital presses for customized and personalized promotional literature.

In short, the Web and the underlying Internet infrastructure that supports it should not be viewed as just outlets for electronic documents. They are also creating a new infrastructure for buying and delivering documents-whether they are data sheets or books-that will be printed.

With that in mind, this article looks at some of the ways the Internet is affecting printing and the implications for both printers and publishers.

In general, we see the Web's impact hitting two major areas of printing:

1. Facilitating a conventional printing business through better communication and customer service. For the past several years, most printers have treated the Web as a free billboard-a place to publish their sales and marketing materials-rather than as an integral component of their businesses. That is beginning to change, however. In printing, as in other businesses, the Web is becoming a conduit for commerce: a way to transact business electronically, complementing personal and written communication.

With the Internet serving as an international data pipeline for electronic information, and with Web browsers providing a universal user interface, commercial printers are beginning to allow customers to submit digitally prepared jobs over the Internet and even to check the status of jobs online. The all-digital workflow is gradually changing the commercial printer's master from film to digital form, adding further momentum to the trend toward shorter runs and on-demand printing. Reinforcing that trend will be the use of the Web as an input mechanism for capturing variable data placed into documents printed on digital presses.

2. Spurring demand for end-user printing. Just because people will be able to get information online doesn't mean that they'll want to read it on their screens. The number of applications that require printed output for legal, social or aesthetic reasons is staggering and will not go away for a very long time-if at all. But new developments in desktop printers, complemented by advances in Web-based printing such as PostScript 3 and

HTML printing extensions, will improve the options that end users have for printing documents themselves. The shift will pose interesting challenges and opportunities for publishers of all types, both corporate and commercial.

Using the Web to facilitate conventional printing processes and business

UNTIL RECENTLY, tying a commercial printing business to the World Wide Web was a challenge for pioneers. There were no true off-the-shelf packages. The process required a lot of construction, configuration of custom client software and licensing. In short, a printing company that wanted a state-of-the-art Web presence needed to build the site itself. In 1995, A&A Printers' Robert Hu did just that, creating a site for customer service, estimates, job submission and tracking, and one-stop shopping for graphics services. (See The Seybold Report on Desktop Publishing, Vol. 10, No. 4, for a full account.) Now Hu's ideas have been transformed into commercialized services.

Electronic job submission

Today the most common way to submit digital jobs for analog (printing press) output is on Syquest or Jaz cartridges or other removable media. Increasingly, transfer by courier is giving way to transfer by communications lines-dial-up connections by modem or ISDN, dedicated networks (such as the recently announced Scitex and British Telecom joint venture or the private networks that Wace, AGT and others run today) and satellite communications to remote printing plants.

It used to be that a printing company that wanted to offer customers a way to send files electronically had to develop or at least support the software that would be installed at its customer's site. The printer also had to manage the data communications between itself and its customers. A printer may still need to do this for some clients in order to offer quality customer service. Today, the Internet, unlike proprietary networks or dial-in accounts, provides relatively simple open access for a wider range of customers. Because many companies are already using the Internet for E-mail or other applications, there is a much smaller burden on the part of printers to manage their customers' communications access. Once customers are connected to the Internet, data can be sent anywhere. There is no struggling to make a connection or fiddling with baud rates, data bits and parity for every location you want to contact. Delivering copy and proofs is a matter of finding a site address rather than installing cable and hassling with the phone company.

Certain customers may still require dedicated connections for file transfer because of time and security considerations. The Internet is still too slow in too many places to handle the large files needed for publishing. Connecting to a public network still creates a security concern for many; hence, the popularity of proprietary ISDN networks from Wamnet, DAX and 4-Sight. Web browsers, though popular, are not yet universal.

Over the next few years, however, these concerns will diminish, and situations requiring the use of dedicated or private connections will become the exceptions, not the norm. Banking on this trend, a growing number of firms are introducing software and services to help printers get their businesses online.

Commercial software

Hu's homegrown solution has been copied by several software developers. Though none yet offer as rich an implementation as A&A provides, some do offer the advantage of being readily available at modest prices, with no development costs and some support.

The typical package includes server software installed at the printer's site, providing customers with dial-in numbers or Internet addresses to accept jobs digitally.

FreeMail's FreePrint. FreeMail is a telecommunications software company with a well-known E-mail system that offers several products that can help printers handle electronically delivered jobs. FreePrint was originally designed for dedicated networks and dial-in modems, but it can

also be used on the Internet, depending on the customer's requirements. The user interface is the same regardless of the communications medium.

FreePrint is designed to be a client-server solution for the quick-print industry. It allows the user to complete a prebuilt job ticket and transfer files via FTP or E-mail. FreePrint contains its own file compression-decompression algorithms and a mail server that can be configured to accept attached files of any size. With FreeMail's Rapid Form Development Kit, the job ticket can be customized for an individual printer's needs.

Both the print shop server and the client software run on Windows and Mac hardware. FreePrint can also be run from a Web server. If you don't have a Web site, FreeMail's home page has a link to let users send jobs to customer print shops. Pricing is based on a sliding scale, depending on overall volume and the number of client-server licenses.

An early version of FreeMail was licensed by Kinko's to develop its Kinkonet service. Alpha Graphics also used FreePrint to build a dial-in electronic delivery system for its quick-print shops.

IPC's PrintEngine. Introduced this month at the Print '97 show, PrintEngine is essentially a job distribution system that features online order entry and digital transmission of files to participating print shops via the Internet. PrintEngine accepts digital files over the Internet and prepares them automatically for output to the appropriate digital copier, printer or platesetter.

The online order form allows customers to attach their files and select the output device, paper size, number of copies and whether the job will be printed on one or two sides. From here, they can request a price quote without processing the order. All financial transactions utilize a secure server.

Once IPC receives the file, the software checks to ensure that the file meets the parameters selected by the customer. If the file fails, the customer is notified via E-mail to correct the file and resend it. If it passes, the file can then be sent to the RIP for processing and output to the desired device. When the file has been processed, an invoice is generated by the system and sent to the customer via E-mail.

The IPC server runs on a 200-MHz dual Pentium Pro under NT 4.0. The IPC server will house the Web sites of all IPC-authorized partners and will list information about the printer, available printing stocks, prices and links to print drivers and show an online order form specific to that printer.

The system uses proprietary software developed by IPC with various Microsoft tools. The major difference with this system is that it deals solely with PostScript-based files that are ready for output, making it unsuitable for jobs that need further prepress processing.

The product has been in beta testing for the past year. During that period, the site received more than 2,000 orders from the U.S. and abroad.

PrintersWeb. Earlier this year Luminous introduced a more sophisticated and comprehensive approach than mere job submission. Called PrintersWeb, it is a database-driven, shrink-wrapped Web site for commercial printers and their customers. The package, which was developed for the graphic arts industry, provides services for both publishers and their service providers. It supports job submission, with customizable job tickets, through several file-transfer methods (E-mail or FTP). It also provides the printer with job tracking, automatic updating of client accounts, job estimation, quoting, scheduling and reporting, plus customer service via E-mail.

The software runs under NT 4.0 on a Microsoft Web server. It is bundled with Microsoft Access, but any ODBC-compliant database with an identical schema can be used. The entire application runs from the server, so clients or administrators can access the site with any Web browser through password-level security.

The application provides forms for job tickets, estimate requests and the like, which can be customized with an HTML editor. Drop-down menus guide the user through the process of completing the job ticket. Because

the system requires customers to validate their activity by their ID, it's possible to customize the ticket so that customers see only the options relevant to their accounts.

Royal Impressions, a New York City commercial printer, is currently rolling out its Web-enabled service, dubbed EZRoyal, based on PrintersWeb (royalimpressions.com.) At the back end, EZRoyal will be tied to Royal Impressions' existing Luminous Open system to automate workflow. Royal Impressions is hoping to use EZRoyal as a way to differentiate the firm from other vendors that concentrate solely on delivering lowest-cost-per-page commodity printing.

Jim Cannata, director of new media, says he sees value in creating partnerships with customers that provide printing solutions to improve the business process. He also likes the way EZRoyal ties into sales: Part of the attraction of adding a Web-based front end is its utility as a sales presentation tool when visiting corporate customers.

PagePath's Launch. A product that is similar to FreePrint, PagePath's Launch originally was developed for use by prepress and printing firms with dial-in and proprietary networks, but it now supports the Web. Using the Launch client, customers at Macs or PCs with modems or on a private network fill out a work order on the screen to send files to their print shops at any time. The program automatically compresses the data and dials the number. The work-order form can be customized by the print shop to ensure that it includes all necessary information.

At the print shop, the job is received by the server, sent to a specified directory, decompressed automatically and added to the job queue. An operator, working at a Windows station, can view received jobs on the screen and sort them by customer name, job name, date of receipt or date due. Other available job-management functions include adding or deleting jobs, archiving jobs to disk, editing the work-order information, initiating a preflight test, copying files and sending jobs to printers on the network.

The targeted markets are commercial printers, quick printers, school and university print shops, and other inplant printing facilities. Launch is used as a job-submission client by Xerox, DAX, IBM and Scitex.

Using the Web to drive on-demand printing

For printers that run digital presses, the Web is a natural medium for extending their businesses. Samples of inventory can be placed online and tied to a Web-based order form. The printer can offer small or nonprofit publishers a new distribution outlet, one for which the customer assumes no burden of inventory.

Several months ago, we wrote about Trafford's Web service-printing manuals and books on demand via a Web-based interface and a DocuTech back end (see Vol. 1, No. 10). Trafford, which is affiliated with a nearby commercial printer whose owners have invested in Trafford, has an online bookstore that carries an eclectic mix of titles aimed at niche markets. Trafford is now licensing its software, which handles job processing, ordering and tracking.

Commercial Communications, Inc.

Another firm that has been using the Web to drive on-demand printing is Commercial Communications, Inc. (CCI), a commercial printer and information distribution company in Hartland, WI. It prepares and publishes technical materials for printing on offset presses, digital printers (mainly a Xerox DocuColor 40), CD-ROM and the Internet. For many of its clients, it manages their entire libraries of technical publications, which are archived as "print-ready" documents or as pieces of the whole to be accessed and assembled on the fly using custom programming and templates.

CCI has its own printing and binding facilities, but it also transmits electronic documents over existing communication services to enable documents to be printed at facilities close to the final destination of the documents.

As part of its demand-printing operation, it offers offline scanning (so customers can send hard copy as well as electronic files), assembly,

fulfillment services and generation of administrative reports. These reports about inventory, usage and distribution can be used by accounting, marketing and production departments for applications such as to note trends in the usage of literature to help in forecasting future demand.

FoliQuest

We haven't yet come across many shrink-wrapped systems for setting up Web-enabled on-demand printing services. One that is already in the field, however, is Instant Response, from FoliQuest of the Netherlands. It is a prebuilt tool that can offer on-demand printing from the Web, developed in conjunction with Colorbus and using a network of printers based on Colorbus controllers.

Instant Response provides a Web server at the FoliQuest site, containing a database of product literature available to sales representatives looking for documentation to send to prospects. The sales rep accesses a catalog of available documents, requests the appropriate ones, selects a cover letter to accompany them and types mailing addresses for the prospects that are to receive the printed materials. FoliQuest then selects the closest location for each order and sends the files for printing at those sites. Printing is done through a network of service bureaus with Colorbus Cyclone Print Stations. The prospects receive the materials by mail—often the next day, FoliQuest says.

FoliQuest manages the catalogs of documents for participating companies, but it doesn't manage the content of the electronic files themselves. FoliQuest also collects information for the companies.

Using the Web to capture variable data to drive printed output

It is one thing to use the Web as a way to order conventional print jobs. A more challenging endeavor is to use the interactivity of the Web to encourage the customer to submit information that is then used to drive the production of personalized printed literature.

In its simplest form, this might be a case of choosing a business-card design from a set of choices on a Web page, typing in a business title and address, giving credit card details and then pressing "submit." The data a customer submits could be added to a FileMaker Pro database. The data from this database could then be used to generate Quark documents or, at its most sophisticated, variable-data printing on a digital press, all triggered by the capabilities of the Web.

Visitors to a car manufacturer's Web site, for example, could be asked for their tastes in color, tires and trim; their financial commitments; and so forth. The information could be passed to a variable-data program that would print customized brochures, each showing a car in the preferred color with the options appropriate for the price range.

This methodology could obviously be utilized in many other markets. We wrote about this a year ago when Stratus, a manufacturer of high-performance workstations, teamed up with Graphics Express to produce customized four-color brochures, based on input visitors left behind at the virtual trade show. (See The Seybold Report on Desktop Publishing, Vol. 10, No. 9.)

Today the concept has been picked up by a few firms in both the U.S. and Europe, but standard packages for doing this kind of customization are not yet available from the digital press manufacturers. What is in the field are systems that customers have built themselves. In at least two cases—Iprint and Pix FX—these users are considering offering their homegrown systems as commercial products.

Iprint

Iprint is a California firm that provides site-hosting and Web design services to printers. It has developed Iprint, an online store for ordering labels, stationery and business cards over the Web. While Iprint currently acts as a retailer, selling printing services through a number of Web sites, deals are planned to partner with commercial printing establishments and quick printers.

The Iprint system is an interactive, self-service environment for designing and ordering print. Built on top of the Netscape Enterprise server running on a series of NT servers, the Iprint software is designed

to run in kiosk mode, which makes it possible to sell printing services in stationery stores or shopping malls as well as through Web sites.

How it works. Iprint is a server-based application that allows users to create jobs. It differs from other systems in that customers use Web browsers and the inherent WYSIWYG interface to input data and manipulate preformatted designs. Users are able to upload logos or custom graphics if they are available. Iprint's CEO, Royal Farros, claims that the use of a WYSIWYG interface and automation reduces the redo rate to less than one percent. The interface is simple, and it's meant to handle mass market jobs for customers who don't want to deal with a desktop application, such as PageMaker or even Microsoft Publisher. When a job is submitted, an EPS file is rendered and sent to the printer. It's possible to save designs for reordering. The system handles order tracking only through E-mail or telephone, but the target market isn't likely to require sophisticated online job tracking 24 hours a day, seven days a week.

Pix FX Ltd.

Pix FX Ltd. is part of the Romsey Communications Group, which consists of a printing company, a prepress operation and a graphic design agency, based near Southampton, England. Romsey has a variety of modern printing technologies, including an Indigo E-Print digital press. Pix FX, the design firm in the group, is an Internet consultancy that Romsey took over earlier this year with the intention of promoting itself more aggressively on the Internet.

We first noticed the firm at Imprinta, where it exhibited in the Indigo booth. Pix FX demonstrated software that allows customers to redesign and edit quite sophisticated print documents over the Web. As happens sometimes with products developed by end users, the original idea was merely to use the product for Romsey's own client base. However, the interest from end users, the press and equipment vendors at the show has led the firm to develop the project into a marketable commodity, which it calls Podesta.

How it works. Pix FX supplies a printer with a standard workstation with its software loaded on it. This workstation is connected to Pix FX's server over the Web. The printer supplies Pix FX with its customers' designs in the form of Quark Xpress or Adobe PDF files.

These designs can consist of standard pages with choices for different pictures, text paragraphs and headings. In general, any element that can be placed on a page can be customized in a way similar to the variable-data selection menu found on Indigo and Xeikon systems.

Pix FX then generates a set of low-resolution "virtual pages" that take advantage of specially written ActiveX or Java files.

When the printer's clients access the site where these pages reside, they are given the opportunity to choose graphical elements, such as different pictures, by clicking on the picture area on the "virtual page."

Currently, only short headings can be edited, although it is possible to swap entire paragraphs, such as you might want to do for foreign-language versions of a document.

When the customers are happy with the design, they confirm the quantity of the print order. The Pix FX server then transmits a very short file-containing only the list of choices the client has made to the printer's server, which then generates a PostScript file for the selected output device, which might be a digital press, an imagesetter or another device.

Pix FX points out that every function can be controlled through password access, so that only authorized personnel can access or order any printed material.

The Podesta marketing concept works in a similar way to some of the merchant-server sales models, such as Icat. Pix FX, in effect, is a service provider, maintaining control over the server side of the product, but allowing others to buy the client software to use with their own designs and added value. Because companies may wish to use this service for confidential printing projects such as price lists, for some users a

wide-area intranet may be the only solution.

Pix FX is already in discussion with a number of countries about offering the server functionality abroad.

Moore Interactive Marketing Solutions

In the fall of 1996, Moore, one of the largest printers in the U.S., announced an on-demand, custom catalog service that it had set up in conjunction with KPN, a Netherlands-based telecommunications company. The service integrates database, print-on-demand and telecommunications technologies that allow companies to develop one-to-one relationships with target customers through real-time creation and distribution of customized print catalogs.

Through an automated phone call, consumers request custom catalogs featuring selected products. The catalogs include articles, advertisements, comparative test reports and dealer addresses related to the products. Via Moore's custom-printing program, which employs a Xeikon color printer, consumers receive their catalogs within 48 hours.

There are three parts to the system:

- * A voice-response system used by KPN, where the consumer dials in and punches a code into the phone to create the desired data sequence. The consumer is charged about \$1.50 for the call. The catalog is shipped to the consumer free. Orders can also be taken via teletext and the Web.

- * A high-speed, variable-data front end, developed by Moore over the past four years, that includes a layout application, a high-speed RIP, a high-speed disk array to hold the variable data and a proprietary interface to the printers. The layout application, called the Moore Variable Color Configuration, can import graphics, photos and layout elements from standard desktop applications and can interface to standard databases.

- * Digital printing equipment. In the Netherlands, Moore uses three Xeikon printers to fulfill requests. The company also uses Indigo printers for the project.

The Dutch program is a cooperative project between Moore and KPN. The cost of the catalogs is underwritten by the companies that advertise in them. For example, a consumer who requests information on home electronics might receive advertising for Sony or Mitsubishi as part of the catalog.

A&A Printers and Digital Graphics

Since first experimenting with connecting the Web to his commercial printing business, Robert Hu, of A&A Printers and Digital Graphics, has continued to develop his application. One current implementation, for handling business cards, is designed for a printer that has an existing relationship with a large client. It involves creating a template for business, through which individuals enter their information through HTML forms. The application then feeds this information to the database publishing system, from which GIF and PDF renditions are created. The GIF preview lets the customer see the way the card will appear in print, while still in the midst of the ordering process. Once the individual approves, the system automatically sends an E-mail message to the customer's manager asking for authorization to go ahead with the print job. Once authorization is received, the system queues the job for a automatic imposition for digital press or offset press and also generates a PDF rendition, which the individual can use to print temporary business cards while waiting for the final box of 250 or 500 printed cards to be delivered.

This application is a good example of how the Web can be used to enhance the business of printing. The medium becomes a conduit for business at the same time that it serves as the vehicle for customers to create and submit new print jobs themselves, with a minimum of fuss. Customers get better service, and the printer gets more business.

Implications

As we see more products that are truly integrated into Web sites, the front ends for E-mail and FTP services begin to look inflexible and dated. Web-based front ends for printing-whether they are based at a single print shop or at a server distributing jobs to partners around the country or the globe-will become a standard method for job delivery.

Get networked

The trend toward use of the Internet as a front end to printing is supported by a recent study published by NPES, which predicted that in five years most submission and distribution will take place over the Internet.

The NPES study recommends that over the next one or two years publishers "get networked" to take advantage of what the communication medium offers.

Getting networked is easier said than done if you are expecting a simple solution. Data communications is a specialized field, and it is prone to the same problems of equipment obsolescence as the rest of the computer industry. Adding staff with data communications expertise will be as important as having staff with experience in the graphic arts.

The popularity of the World Wide Web has caused increased need for communications bandwidth. A number of solutions either exist now or are on the horizon, and it's important to note that not all methods will lead to the same place. ISDN, for example, is an older technology that will not scale up well. Not all new solutions provide true bidirectional bandwidth, especially those geared toward the consumer market. In general, you can download data much faster than you can upload it with satellite dishes, cable modems and ADSL lines.

A new set of high-bandwidth options will open up after December 1997, when the FCC auctions off licenses for cellular channels dedicated to high-speed data transfer called Local Multipoint Distribution Service (LMDS).

In reality, there is no single answer for all shops. In spite of the Web, you may still need to have multiple methods available for electronic delivery of jobs to satisfy customer demands. A Web site, combined with a dedicated network for large customers and dial-in lines for smaller ones, would cover all of the bases. While a dedicated, high-speed connection to the Internet may not be a practical solution for small shops, Web sites can be remotely hosted and accessed via dial-up or ISDN lines. Devices such as Whistle Communications' Interjet 200 provide simple ways for small shops to provide E-mail and file-transfer services.

In addition to taking in work, a network infrastructure can be used to pass jobs between different locations to balance workloads. Small shops may want to form networks, passing work to others with special equipment.

For printing over the public Internet, a host of concerns are introduced. Security problems can be addressed through the use of firewalls and creation of "extranets," interconnecting networks of business partners.

Watch the Web initiatives

The Web is creating a common infrastructure for business-to-business communications. This has been the case for years in certain industries, and there are well-established international standards, such as EDI (electronic data interchange) for electronic commerce. Major initiatives are under way by companies such as Microsoft, Citibank, IBM, American Express and SAP to enhance use of the Internet as a commercial medium. There is significant reduction in costs by automating basic business processes. For example, Boise Cascade Office Products reduced its cost of processing orders by 50% after installing an Actra system. It's time for both publishers and printers to begin talking about conducting the entire ordering, invoicing and payment processes online. The rest of the business world will be moving in this direction, and, inevitably, the printing industry will follow suit and will want to take advantage of commercial software that serves its purposes.

Conclusion

Two hundred years ago, in the days of Ben Franklin, a printer was also a publisher. For most of this century, printing has been a manufacturing service. Ten years ago, the arrival of desktop laser printers made it possible for personal publishers to create digital masters to handle short runs just like Franklin did, but without the seven-year apprenticeship. Only recently has digital printing begun to affect offset printing of documents with press runs of more than several hundred copies. The World Wide Web will be a way for commercial printers to extend that business, even as it also feeds the growth of the next generation of printing-digital

presses.

As printing continues to become more and more of an automated business, printers will need to work hard to enhance their level of customer service. Four years ago, speaking at a Seybold conference, Hu said that the printing firm that wanted to be in virtual manufacturing (and increasingly that is the direction for many printers) would become-in essence-a "Chooser-level icon on the customer's desktop." In the examples cited above, we can see the direction that printers will have to take: the use of the Web to improve communication between printer and client, and the use of the Web to drive digital printing.

The Internet's impact on end-user printing

At the same time that the Web is affecting the commercial printing business, it is changing the way end users print documents themselves. In the long run, it is the changes at the end-user side that will have the most profound impact on publishing. The Internet standards bodies are hammering out standards that will impact the entire computer industry, and related developments by vendors will dramatically change the capabilities end users have for printing documents.

In the past year we've seen a steady increase in the number of output devices that feature TCP/IP connectivity. Initially, this just meant that such printers could be hooked up to your local area network through a different network protocol. The next step was adding an HTML client (such as HP's Web JetAdmin) to fill out the job ticket or check on the status of the print queue. Some vendors are now adding Java clients.

This fall we'll begin to see this capability extended even further in several interesting ways:

- * Web-ready printing, a component of some output devices and an announced direction for Adobe's PostScript 3;
- * Internet Printing Protocol (IPP), a budding vendor-neutral standard for submitting jobs over the Internet to output devices;
- * Printing extensions to cascading style sheets; and
- * More robust batch formatting by end users printing documents delivered to them over the Internet.

The changes described here are new developments that have not yet made their way into the marketplace. We present them to indicate where things are headed, with the understanding that we'll be covering them in more detail in the future as they take hold.

Web-ready printing

Wouldn't it be nice if your output device could just fetch and print pages, without requiring you to download, format and spool them from your desktop? That capability is coming soon, and it will be more than just a convenience to consumers. It will turn printing devices into virtual fax machines, creating a new delivery option for publishers.

Get ready for IPP

In back rooms, by dim monitors, a potential revolution is brewing in terms of how we access and manage printers. The ringleaders include IBM, Xerox, Adobe, Lexmark, Sun, Novell, Sharp, Underscore and Microsoft, but they also have recruited the remaining Who's Who in the industry-Apple, Brother, Data Products, Dazal, DEC, HP, Intel, Kyocera, Netscape, Panasonic, QMS, Ricoh, Tektronix and so on. The band goes by the innocuous name of the Printer Working Group (PWG), but over time it intends nothing less than to sidestep platform-dependent protocols-IPX/SPX, Netbui, AppleTalk, TCP/IP-and promulgate one easy, clean, scalable and Web-savvy means of communicating with heterogeneous printers. Viva la revolucion.

What's being developed is the Internet Printing Protocol (IPP), which is not a product, but an underlying technology that will be submitted to the Net's overarching technology committee, the Internet Engineering Task Force. When adopted as a standard and implemented by vendors, IPP will provide core printing functions over the Web and private networks. These functions include:

- * Querying a printer to determine its characteristics. Does it support PostScript or duplexing, for example?
- * Locating printers by capabilities (e.g., color, speed, resolution),

geography or name.

- * Configuring printers.
- * Submitting or canceling print jobs.
- * Monitoring the status of a printer or print job.

IPP is independent of hardware platforms, operating systems and page description languages. It can use Web browsers, but "there's nothing in the spec that says you have to have a Web environment," according to Carl-Uno Manros, Xerox's principal engineer of advanced printing standards in El Segundo, CA. Accordingly, different vendors will have varying implementations of IPP. For Novell, IPP will "live" in the network operating system; for Microsoft, in the desktop operating system; for Xerox, in the printer; for Sun, in the print server; for Adobe, in software and in controllers; for IBM, in MVS, InfoPrint Manager, and printers. IPP alone is merely a foundation on which to build applications.

Steve Zilles, manager of standards at Adobe, makes an analogy to the telephone system. The pervasive Uniform Resource Identifier (URI) in IPP technology is the equivalent of a phone number. IPP, in turn, is the mechanism by which you can talk and send documents over the phone network. A URI, it should be pointed out, is similar to a URL, except that the URL is a nonpersistent pointer to a file, whereas a URI is a persistent identification number for devices. (The printer's IP address was not used as its VRI because that scheme is tied to one network protocol, and the PWG wants to ensure that IPP will operate over any network.)

Yuletide target. At an analysts briefing on August 27 in Waltham, MA, the PWG announced that it will submit a draft proposal ("Internet Proposal") to the IETF in September and expects to have a Request for Comments by the end of the year. Prototypes are already running, according to the PWG, and products from select vendors will appear by Christmas. The PWG has been working since October 1996.

A slimmed-down specification has recently been proposed by Microsoft and Hewlett-Packard. Originally called Simple Web Printing (SWP), but now officially dubbed IPP level 1, it supports only job validation and submission over the Web and returns all management functions to operating system-specific programs. As a result, many of the sophisticated management features proposed in the IPP will be optional.

Capabilities. The technical proposals of the PWG are available at www.pwg.org/ipp. The capabilities of IPP are still evolving, and all are in the draft stage, meaning that the general public cannot yet test products firsthand. Here, nonetheless, is a sample of the features that are fully documented on their Web site. Note that the initial products are not likely to have all of these features.

IPP will show you a list of jobs, so that if 400 jobs are ahead of yours, you can select another printer. It will report errors and let you resubmit the job if you so choose. It will understand PostScript, PCL, PDL, IPDS, EscapeP and Interpress languages, but it also will print from popular applications, such as Word or PowerPoint. If you know the location of a file that you want to print, instead of sending the document to the printer, you can send only the reference to the document—a Web address for example—and IPP will fetch the file. It also will let an administrator set up access control lists, defaults, templates or charge-back invoices. Both revisable and final-form documents can be distributed.

The user can specify whether the job should be printed anyway that's possible ("just get it on paper"), or canceled if it cannot be printed exactly as specified. Stapling or binding are among the supported attributes.

Despite the tendency to revamp printing as we know it today, the PWG is chary of change for the sake of change. IPP will work with existing firewalls and use existing security protocols for authentication and authorization. If IPP encounters the Unix line printer daemon (LPD), it remaps the print command. If it detects a job intended for a legacy printer, which knows nothing about IPP, the job is sent to a server that "talks to" that printer. If you fail to upgrade your browser, it will still work with IPP, because an HTTP 1.1 server can respond both to today's HTTP

1.0 browser and to the new HTTP 1.1 browsers, such as Microsoft Internet Explorer 4.0.

Extensibility. IPP is extensible in several ways-by the PWG officially, by a registered member of the group or by an individual site, whether associated with the group or not. Each type of extension is recognized by the architecture and treated accordingly.

The ease with which IPP can add new components derives from the adoption of an object model. IPP objects include the printer, job and document, any of which attributes can be queried. An output device's attributes include:

- * Its URI, or numeric identification number;
- * Its name, with text attributes, which easily can be localized for foreign countries;
- * Its state (whether the printer is running, stopped or jammed);
- * Whether it is accepting jobs;
- * The default machine languages it accepts; and
- * Which human languages (French, Russian, Japanese, etc.) are supported.

Job attributes include a job identifier, the job owner's identity and the job stage (pending, processing, or completed).

Document attributes include the document name and the page description language to be used.

Proceed with caution. IPP will facilitate distribute-and-print publishing on the Web, but it also will make it easier for spam artists to send a higher quality of junk fax, once the printer's URI is made public. Security features are built into the protocol, but network administrators will have to know how to throw the right "switches."

Meanwhile, parallel activities are going on in groups such as the Salutation Consortium and the Internet Fax Group. There is no significant coordination between the groups, although some IPP members belong to more than one standards body.

Companies such as Xerox (job ticketing), Dazel (print management), Novell (Novell Distributed Print Services), and Adobe (PostScript 3) already have built or are building products in some of the same areas covered by IPP. To this extent, they will lose some of their uniqueness-"That's life," in the words of Steve Zilles. It was pointed out, however, that PWG members could enlarge their market base on the front end (the consumers who are printing documents) and benefit from a significantly increased number of compatible printers on the back end. Each vendor thus can concentrate on what it does best.

Typically, the Web is viewed as a threat to print, not an ally, and certainly not as a beacon for hardcopy developers. Those assumptions will have to change.

Adobe's PostScript 3 plans

Announced this past April, Adobe PostScript 3 is the latest iteration of Adobe's printing system. But at its announcement, Adobe revealed that PostScript 3 will add more than just a few new PostScript operators. Part of the package that Adobe will be offering to output device suppliers is a Web server that goes with the RIP, for the express purpose of printing documents off the Web.

Because the PostScript 3 RIPs can read PDF, users will be able to send a URL to a Web-ready printer. For a PDF document, the output device will download and print it without it ever being sent to the user's workstation. We disagree with Adobe's claim that this will reduce traffic on the Internet or the LAN (the PDF still has to be downloaded to the user's site, after all, and most printers will be connected to the net by a LAN), but without a doubt it will free users from having to wait for these typically large files to download to and print from their own machines.

EFI out first. This summer Electronics for Imaging (EFI) became the first Adobe OEM to deliver such capability. Its WebTools package uses a Web and Java server to offer remote-job and output-device management. End users use their browsers to locate the device. After entering their password, they download a Java applet that lets them initiate a job, see a job's

status and even reprint jobs with new job parameters without resending the original file.

The Web-ready component of EFI's server enables users to instruct the output device to download PDF, GIF, JPEG and PostScript files.

What will it provide? As with IPP, the PostScript 3 Web-ready printers will open up interesting possibilities for publishers that produce publications, articles or reports in PDF. Today, documents are being "pushed" out to users' E-mail in-boxes, but in the future, publishers will have the option of sending them to a printer. The quality, though typically a far cry from offset, will nonetheless be a dramatic improvement over facsimile, especially for customers with 600-dpi printers. Adobe hopes that such Web-ready printers will be another boost to the adoption of Acrobat and the PDF format, which has already become the de facto standard for electronic pages, and is second only to HTML as the preferred format for transmitting publications to customers.

In certain segments of publishing, we expect that this boost will happen. It is a natural for journal publishing, for example, where individual articles can be downloaded by subscribers or ordered by nonsubscribers on a pay-per-view basis, and customers can be confident that the document they are printing is the same one that appeared in the print journal.

It is also a convenient supplement to HTML for other types of short technical documents, such as data sheets, that customers often want to print for reference. As the use of variable data in page makeup programs becomes more commonplace, we expect to see growth in PDF output of customized documents ordered over the Web. This would include not only data sheets but also longer documentation, such as custom manuals that reflect a customer's configuration. (Database Publishing Systems offers a product for doing this, with FrameMaker or Interleaf as the page makeup program.) If the product being ordered is software delivered online, then a natural complement would be a manual delivered as PDF to the customer's output device. This method would also work for purchase orders and other forms that are typically delivered by fax.

But what about HTML? In order for the printer to successfully print Web pages, it must handle HTML as well as PDF. Adobe plans to build into its PostScript 3 product family an HTML interpreter that will format Web pages for printing, much like today's Web browsers do.

Details on this product, announced last April, are still sketchy, and none of the first PostScript 3 machines have this feature. In April, Adobe said that its first HTML interpreter would handle HTML 2 with "some extensions." It would not handle HTML 3.2, and it would not support style sheets. When we asked for an update in late August, an Adobe spokesperson confirmed that the Web-ready features were "still under review" and that no new promises had been made. At this point, Adobe is not saying when we might expect to see a Web-ready PostScript 3 printer, but we expect to see the first ones announced in the next six months. Based on Adobe's present description of the capabilities planned for its HTML interpreter, which we'd describe as barely adequate, we see an obvious opportunity for Adobe's OEMs to differentiate themselves on how well they add value to the HTML formatting and printing process.

At the same time, because of the work of the Printer Working Group mentioned above, vendors are free to pursue Web-ready printing independent of PostScript 3. An HTML formatter could be built into a print server that feeds multiple devices as easily as in a stand-alone RIP.

Reformatting on the fly

On a different, parallel front, there are people who are working on improving the capability of software-running on servers or on desktops to reformat Web documents to make them look better when printed on paper. These developments complement IPP in that they strive to produce better documents before you send them to the output device. Depending on how well they succeed, they could eventually alleviate the need to preformat documents altogether.

This last area of change is, in some respects, the one we'd like to

see the most, because it would do more than any other to dramatically improve the typographic quality of Web documents.

Efforts outside of the browsers

We'll look first at two products that run outside of the conventional browsers, before focusing on efforts to improve the formatting that occurs within the browsers themselves.

Canon's WebRecord. A year ago Canon introduced a Web printing capability based on its own formatter. Developed by Canon's Australian research affiliate, Web-Record prints multiple Web pages at reduced size on a single sheet (see photo). The user specifies the Web addresses to be printed and which files to print from each address: only the home page, all linked pages, all directly linked pages, all pages in the same directory or subdirectory, or all pages on the same host. WebRecord then generates a list of pages, which can be reordered by dragging and dropping items in by name.

To simplify the task of specifying which URLs to print, the system tracks the user's access to Web addresses through a browser and lists them on the queue of jobs that are available for printing, relieving the user of having to recall and type the addresses.

From the queue, the user selects the jobs to be printed, specifies the number of columns to appear on each page and chooses the type size for text to be printed. The system then reformats the documents for printing or display. (Graphics are scaled automatically according to the page size.) Pages sometimes break in the middle when they appear at the bottom of a column, but they still provide a convenient record of the contents. The program also adds value by collecting all of the URLs within the pages being printed and listing them at the end.

As its name implies, WebRecord provides a good record of a user's Web activity, while cutting down drastically on the number of pages needed to print Web files, which otherwise would default to the browser's single-column, large-font presentation.

WebRecord runs under Windows and is available through Canon in Australia and in the U.S. The price is \$100 (Australian).

Archetype's NuDoc. One of the most promising technologies in this arena is Archetype's NuDoc, recently acquired by Bitstream. The engine, based on Archetype's extensive experience in page composition, is different from most formatters because it uses design "models." Models enable the designer to specify styles in parameters that are flexible, not fixed. They give the formatting engine enough information to create pages, while still allowing it to take into account the result of the H&J process on variable text.

For example, with NuDoc, a designer can specify that a particular type of element, say a product description, is boxed by a 1-point rule that is 1 pica away on all sides from a block of justified text. The box rule can be specified as part of the paragraph format, but it is drawn only after the text is composed. This makes it unnecessary for a page make-up artist to draw boxes manually while still ensuring that-regardless of the length of text-all of the product descriptions are handled consistently.

This example is fairly simple-the product actually handles much more sophisticated rules-but implementing rule-based pagination of this type on the fly requires a sophisticated formatter that does not occupy too much code yet still runs fast on desktop machines. To date, Archetype has succeeded in gaining the attention of a few developers in newspapers (first, SII and more recently, Atex), but with this product, it has yet to crack even the professional publishing market. We suspect that the time will soon come when its ideas, if not its technology, will reach the mass market through developments on the Web browser front.

Printing extensions to HTML style sheets

Over the summer, the working group within the World Wide Web Consortium that is developing cascading style sheets (CSS), produced a set of proposed printing extensions. These, when used in conjunction with CSS, are intended to enable publishers to send print-specific instructions along with their HTML Web documents.

The initial draft, published in June, covers just three areas:
Page breaks. Authors can specify page breaks before or after HTML elements, as can be done in page makeup programs. This is an obvious first step, one that goes nicely with the media-dependency addition described below.

Page boxes. A style sheet can specify page boxes that describe the printable area on a page. These can be different for verso and recto pages, and crop marks may be added. Because there are no HTML elements that correspond to a page, the page box is added as a declaration to the entire document, using the "at-rule" extension mechanism of CSS.

Although this addition still does not provide multiple-column layouts, it does give the browser some additional information for how to cope with documents that don't fit the page size of the target printer. Pages can be scaled or rotated to fit, for example, or the browser could prompt the user for a decision. As with other aspects of style sheets, the specification tells only how to insert the instructions; it leaves implementation up to the browser vendors.

Media dependencies. Portions of an HTML style sheet can be assigned to specific media. The current list includes screen, print, projector, Braille and aural. This allows the designer to assign a style to a specific media type, or to make a single style sheet the covers multiple media, a welcome change from CSS 1, which requires separate style sheets for each media type.

Recognizing that "the best Web pages for screen display make the worst Web pages for print," the printing extension authors conclude that "the most active Web pages must be converted to static pages prior to printing. If this is not done just right, the intent of the author may be distorted and critical information may be lost."

The authors suggest that the solution, in situations where both media must be supported, is for the author or publisher to provide two versions—an active one for the screen and a static one for print. To support that, a new value "alternate" is proposed for the "REL" attribute of the link element. The intent is to provide a consistent method for attaching these static print versions to Web pages, so that browsers will automatically fetch the print version when the user chooses to print a Web page. The attached document need not be HTML; the browser could easily invoke a plug-in or Helper application to print PDF, PostScript or other types of files.

A first step. The printing extensions will not be all that a good formatter will need to produce good-looking print documents, but they are steps in the right direction, and the CSS working group is trying to move in steps that browser vendors can easily incorporate in their next software releases. When used in conjunction with style sheets and the next generation of Web browsers, the printing extensions give Web publishers some additional controls that should help consumers get, at least, printed output that looks better than what we get from today's technology.

In future extensions, the CSS group hopes to tackle multiple columns, page collections and additional page and type properties (e.g., headers, footers, sideturns, kerning and vertical justification). The latest version of the printing extensions proposal can be found at:
<http://www.w3.org/pub/WWW/TR/WD-print>

An XML/DSSSL alternative? For many years, the SGML community struggled to devise a style sheet language that would be robust enough to handle the wide variety of documents encoded in SGML. Several years ago, it at last succeeded in producing an ISO standard—the Document Style and Semantics Specification Language (DSSSL)—but it has proved too unwieldy for vendors to implement and has therefore seen little use. Since the creation last fall of XML, or simplified SGML, there has been interest in using a subset of DSSSL as a style sheet mechanism for Web documents. Last month excitement swirled around the rumors that such a proposal (from none other than Microsoft) was imminent, but it failed to materialize at the XML developer conference in Montreal (see page 3).

Although we haven't yet seen a concrete proposal, a subset of DSSSL

could be a giant step forward for Web style sheets. DSSSL covers all the bases needed by a robust formatting engine, and we think it makes sense to have such a language to go along with X ML, the language for creating Web documents with your own tags.

How soon will browsers H&J?

Today's Web browsers output at the sophistication level of PostScript word processors in 1986. At that time, Word, WordPerfect and XyWrite could specify PostScript fonts, sizes and character attributes, as well as leading (so different levels of heads could be easily distinguished), but they did not handle multiple columns, they did not provide true H&J and they lacked control over interword and intercharacter spacing.

It took only a few years for the public to embrace, indeed expect, such functionality at the desktop level for making printed pages. But in this decade, consumers have been so enamored of the low cost, fast speed and excellent navigation of the Web that the browsers' comparatively crude handling of type has been viewed as an acceptable compromise.

We think it's reasonable to expect that Web browsers will grow up the way word processors did, to the point where they at least handle the basics of page composition. Netscape, in an strategic plan outlined earlier this year, stated its intention to create a rendering engine, code-named Apollo, whose formatting capabilities would rival desktop publishing tools. Microsoft has not yet made such grand pronouncements, but to date it has shown an uncanny ability to counter every move that Netscape makes. It will take only one of these vendors, showing that H&J makes a difference, to bring this issue back to the fore.

The difference it would make. Ultimately, we need a smart H&J program that can accept tagged input and style sheets and produce good-looking results on the fly. By this we mean dynamic page composition-reformatting the document, either at the end-user workstation or at the printer itself-at the point at which a document is printed. This technology is the most difficult to implement, but it is the most exciting, because it opens up many new and interesting possibilities for end-user printing.

We alluded to this earlier in describing Web style sheets. As envisioned by its creators, the Web browser will reformat the document according to a style sheet (created by the publisher) that is designed specifically for printing. Until the browsers have a decent formatting engine, rich style sheets are a moot point, and publishers seeking to offer their customers high-quality output will have to opt for attaching static renditions, or follow the conventional model of mass printing before distribution.

Conclusion

Without a doubt, the Internet is galvanizing the computer industry to pay attention to printing. Documents may be delivered electronically, but people still like to read from paper. To quote the draft of the Printing Extensions to CSS, "No one has yet invented a cheaper, more reliable, more portable, more convenient, or more universally acceptable 'reader' of information than the printed page . . . Contrary to conventional wisdom, the advent of the Web is very likely to cause an overall increase in printing rather than its demise."

Taken together, the developments highlighted in this article will be important in bringing high-quality printing from the Web to the desktop. If publishers (both corporate and commercial) could count on the formatter to do a decent job of recomposing the document for the target printer, there would be less need to cast its original page formatting in stone (such as is done with Acrobat). The result would be faster downloads and, potentially, formatting that is better adapted to the target output device. A document that originates in portrait mode could have design models for landscape mode (screen viewing); U.S. and international letter-sized paper; and maybe one for printing two pages per each side of paper, as can be done with WebRecord and desktop presentation programs. An application at the desktop could give users better control over how they want their Web documents are printed and could accommodate those with vision and hearing disabilities.

To the extent that software can automate the craft of page composition, and digital printing technology can make it convenient to print documents on demand, when and where we want them printed, the market will gravitate toward desktop printing and the new paradigm of Web-ready printing. The results may not be as pleasing as those produced in the past by hand by master typographers and pressmen, but economics and the seemingly insatiable desire to receive information more quickly will propel the printing industry forward in its march toward an all-digital workflow.

By now, most publishers produce their document masters electronically, and increasingly these page masters will be sent to digital output devices to create printed pages. The harder challenge still facing much of the industry is how to adapt to a new paradigm, one in which the master document-edited, proofread and published-doesn't take the form of print until the customer pushes the print button.

New at Print '97

A number of vendors introduced Web components to print-management software at Print '97, taking place this month in Chicago. We haven't seen them yet, but here is a brief rundown of some of the current products providing Web-based job submission or tracking.

Logic's WebPartner. Logic's WebPartner software uses the Web to give print buyers more control over their orders and jobs. It enables a printer's customers to gain direct access to product and job information over the Internet. It also offers an online method for placing orders and obtaining price quotes.

The initial suite includes quote requests, history and status reporting, and orders for finished goods. Other functions, including direct order entry by the customer, are in the works.

Printers that have their own network server and Internet connection will be able to run WebPartner directly. Companies with Internet access but no Web page can use a special E-mail-only version of WebPartner for quote requests and orders. A company that isn't on the Internet at all will be able to offer WebPartner to its customers by way of Logic's home page, where a special link to check passwords will bring up WebPartner's menus and forms.

Pace Systems Group. Pace has added an Internet Window to its print-management system. The Internet Window includes Web-hosting services, URL registration and the ability to send files over the Internet for printing.

The system also allows customers to receive price quotes, place orders, inquire about job status and check on their finished goods inventory.

Programmed Solutions. In version 10 of its print-management software, which is now a 32-bit Windows application, Programmed Solutions has added Internet connectivity. The system handles multiple simultaneous estimates and reports, and it permits customers to access information about jobs via the Internet. Its WebLink module allows customers to enter requests for price quotes, determine job status and make inventory-control and fulfillment inquiries.

Streamline Solutions. Streamline Solutions is offering a print-management system that enables customers to access job status information, request price quotes and have their orders fulfilled over the Internet. For reprinting orders, customers can select items from a list of their existing jobs and specify a location for mailing.

Tailored Solutions. Tailored's job-tracking software for prepress and sheet-fed lithographic printers, LithoTraxx, now supports access via the Internet. LithoTraxx allows customers to access job status information and request quotes over the Internet. The system can also utilize Internet browsers as clients, allowing users to access the system.

Vercom Software. The developer of the Primac business management system for medium to large printers, Vercom is introducing Internet connectivity, which enables customers to access data, such as paper inventory, finished items, job and order status and shipping information.

UniData, which supplies the relational database for the system, is

using Java-based scripts to access the information in the database and serve it on the Web. Log-in and security features are supported. Future plans include adding support for the submission of job specs to generate estimates or quotes, and real-time job status viewing, information for which will be fed via bar codes from the plant floor.

DAZEL: PDF Makes the Web Another Output Device

To see where corporate Internet printing is headed, consider the firm Dazel. The latest iteration of its sophisticated output server spools documents to an intranet as easily as to a print output device.

Dazel's software manages computer output from mainframes, Unix and Windows NT and runs on all three platforms as both server and client. From any of these platforms, an authorized user can choose a printer, fax machine, E-mail address or pager connected to one of the other platforms. Because Dazel's Output Server manages each device, separate device drivers do not have to be installed, cutting down on administrative overhead.

Dazel recognizes the main output formats-AFP, PostScript, PCL, PDF, Metacode, XES (Xerox), HTML, FrameMaker MIF and binary-and, on the basis of them, automatically routes jobs to the appropriate printer. If you're in a large corporate environment, where, say, a sales or accounting report has to go to remote printers of different types, and you haven't a clue what the printers are or what they need, Output Server will take over. This software delivers the job, monitors the job as it's being performed and then sends a report when the job is complete. If the printer dies in the middle of a job, Output Server will resume from the last complete page. If the problem cannot be corrected, Output Server will page or E-mail any designated administrator. Meanwhile, the job can roll over to a fax machine or the next closest printer, all without human intervention. This kind of functionality, offered today by Dazel, was addressed in the original IPP spec, but it has since been redefined for more modest goals (see page 14).

Ever wasted your time printing a document and then faxing it? Many products let you send a fax from your computer, but printing and faxing are a two-step operation. What if someone else in your organization needs an E-mail of the same document? A third step is needed. Still more steps are needed to post the document to an intranet. Dazel simplifies the process by letting you print, fax, E-mail or publish a document to the Web, or use any combination thereof, by prearranged user and document groups that can appear as a single icon. In this way, separate functions that can be accomplished, say, with Win-Fax or Lotus Notes, are integrated into a management system.

MetaWeb

Dazel has three products: Output Server, Dazel Express and MetaWeb. The first two operate as client-server. MetaWeb is an intriguing new product that is built on Windows' publish-and-subscribe model. On one side of the communication is a Web server utilizing NSAPI (Netscape's API) or ISAPI (Microsoft's API). On the other side of the communication, you hook up MetaWeb to Output Server in the same manner as you would connect a printer to Output Server. MetaWeb then passes HTML to standard Web browsers. This configuration adds security that is not found in the browser alone, for only authorized clients have MetaWeb and access to Output Server. MetaWeb, unlike Output Server, retains documents for an extended period, using Verity's search engine to index the documents for retrieval.

What gets to the MetaWeb from the server is text, HTML or PDF. MetaWeb puts an HTML "wrapper" around the PDF so that you can view the document from a browser. When you access the document, it automatically fires off the Acrobat viewer.

Target market

Dazel is aimed squarely at large corporations in which output-management concerns justify the \$60,000 license for 1 to 150 users. This market presupposes multiple locations and multiple formats, running on multiple platforms.

The appeal to this market is not publishing per se. Internal documents and reports may be highly formatted, but corporations don't treat them the

same way as "published" documents for external consumption. Dazel's ability to be the back end for enterprise -wide applications (e.g., SAP R/3, Oracle Applica- tion Suite) or the front end for enterprise utilities (e.g., CA Unicenter and HP Open View) is what makes it attractive.

Dazel has been doubling its revenues since it was founded in 1993. Revenues in 1994 were over \$800,000; in 1995, \$4.5 million; in 1996, \$9.7 million; and in 1997, Dazel expects millions in the high teens or twenties.

Conclusion

Dazel's appeal is to the customer who has a big problem and needs to solve it yesterday. It offers tremendous functionality at a high price.

While Dazel is meeting the needs of a select customer base, its high-end approach may cut it off from the potentially far larger number of users in smaller corporate and professional settings. Dazel's long-term strategy includes plans to diversify its pro duct line, but if IPP is adopted by the broad market, the firm may cede the middle to low end of the market to com- panies such as Microsoft, Novell and Adobe, who don't mind selling workgroup solutions.

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SPECIAL FEATURES: chart; illustration
DESCRIPTORS: Internet/Web Technology Application; Printing Industry;
Printer Support Software; End User; Digital Printing System; Market Entry
PRODUCT/INDUSTRY NAMES: 3573025 (Document Processing Computer Systems)
SIC CODES: 3571 Electronic computers
FILE SEGMENT: CD File 275

File 344:Chinese Patents ABS Apr 1985-2000/Aug
(c) 2000 European Patent Office
File 347:JAPIO Oct 1976-2000/May(UPDATED 000915)
(c) 2000 JPO & JAPIO
File 350:Derwent WPIX 1963-2000/UD,UM &UP=200049
(c) 2000 Derwent Info Ltd

Set	Items	Description
S1	217	(SOFTWARE?? OR APPLICATION?? OR COMPUTER? OR SERVER? OR ON-LINE OR ON(W)LINE OR WEB OR INTERNET OR PROGRAM?? OR AUTOMAT? OR INSTANT? OR ELECTRONIC OR E OR VIRTUAL OR DIGITAL) (3N) (PRE-PRESS? OR PRE(W) (PRESS? OR PRINT?) OR PREPRINT?)
S2	34520	(ONLINE OR ON(W)LINE OR WEB OR INTERNET OR E OR VIRTUAL) (3-N) (PRINT? OR LITHOGRAPH?)
S3	131129	(CREAT? OR FILL? OR ENTER? OR EDIT? OR MODIF? OR AMEND? OR REVIS? OR POLISH? OR AUTHOR? OR PRODUC? OR ORIGINAT?) (3N) (TEMPLATE? OR FORM? ? OR DOCUMENT? OR FILE? OR TEXT? OR IMAGE? OR GRAPHIC? OR PICTURE? OR PHOTO? OR DRAWING OR WYSIWYG)
S4	39870	(DOWNLOAD? OR SUBMIT? OR UPLOAD? OR TRANSMIT? OR TRANSFER? OR SEND? OR RECEIV?) (3N) (TEMPLATE? OR DOCUMENT? OR FORM? ? OR FILE? OR EDIT? OR APPLET? OR PLUG(W)IN? ? OR PLUGIN? ?)
S5	22986	(TRANSLAT? OR FORMAT? OR INTERPRET? OR PREP? OR CREAT? OR - CONVERT? OR TRANSFORM? OR CHANG? OR SET? OR CONFIGUR? OR ARRANG? OR TRANSLAT? OR PROCESS?) (5N) (FILE? ? OR FORM? OR DOCUMENT? ? OR TEMPLAT?) (5N) PRINT?
S6	17	S1 AND S3
S7	1	S6 AND S4
S8	1	S1 AND S4 AND S5
S9	1320	S2 AND S3
S10	13	S9 AND S4 AND S5
S11	5	S1 AND S4
S12	15	S1 AND S5
S13	15	S12 NOT S10
S14	8799	IC=G06F-017/21
S15	8799	IC=G06F-017/21
S16	2616	IC=G06F-017/24
S17	1180	S15 AND S16
S18	1	S1 AND S17
S19	1	S1 AND S15
S20	2	S1 AND S16
S21	8	S2 AND S17
S22	54	S1 AND S2
S23	41	S22 AND (INTERNET OR WEB OR ONLINE OR ON(W)LINE)
S24	39	S23 NOT (S21 OR S13 OR S12 OR S11 OR S10)
S25	39	S24 NOT S6
S26	0	S25 AND S17
S27	0	S25 AND S15
S28	0	S25 AND S16
S29	0	S25 AND G06F-017?
S30	1	AU="JECHA S"
S31	36	AU="MITCHELL W":AU="MITCHELL W A"
S32	1	S30 AND S31
?		

6/TI/1 (Item 1 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Electronic document production method in financial and banking industry

6/TI/2 (Item 2 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Output device imaging method e.g. for electronic prepress and imagesetting systems

6/TI/3 (Item 3 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Data printing method of preprinted software form in personal computer printer

6/TI/4 (Item 4 from file: 350)

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Database image processing system for producing printed matter e.g. catalog, magazine, pamphlet in desk-top pre-press system - has image substitution unit that substitutes actual image data and decimation image data secretly in set area based on location data

6/TI/5 (Item 5 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Computerized pre-press used in attaining fast, easy and efficient print publishing

6/TI/6 (Item 6 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Image preview method e.g. for scanning by performing initial low resolution scan of original images - obtaining several low resolution digital data representations of several original images and selecting two original images based on low resolution data representing two images

6/TI/7 (Item 7 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Image processing method for converting colour electronic pre-press system image data file to page description file - involves translating each cluster of line work run length encoded entries into at least one PDL element realised as concatenation of horizontal line segments

6/TI/8 (Item 8 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Method for scanning and final image processing of original images - scanning original image between scan limits at determined spatial resolution and at determined digital data accuracy to obtain digital image data to be processed

6/TI/9 (Item 9 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Appts. for computer processing of information forms - has computer software that controls printing, scanning and data manipulation

6/TI/10 (Item 10 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Hue saturation luminance colour correction method for digital image processing in prepress industry - applying HSL change directly to CMY colours, executes changes in CMY colour space maintaining original and new images in same printable CMY colour space

6/TI/11 (Item 11 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Flat-bed scanner providing digitised representation of original document - has reflective parallel and above transmissive object focal plane, selects between planes to position original document, scan carriage has mirror and light source between planes

6/TI/12 (Item 12 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Electronic colour imaging pre-press system e.g. for image setter, plate maker and DDCP - selects image receiving material from one of several supply rolls and loads donor and receiving materials onto drum together

6/TI/13 (Item 13 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Flatbed scanner for high resolution colour images - has movable scan carriage with illumination source positioned between reflective and transmissive object focal planes and suspended along axis parallel to scan line to minimise lighting condition variations

6/TI/14 (Item 14 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Input images proofing and scanning system - scans input image and produces several colour separation signals w.r.t. colour values in input image and proof of image with colour modification appts. between proofing and scanning appts.

6/TI/15 (Item 15 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Business form automation system - includes three computer systems one comprising forms automation platform, second having input facility and third having central library

6/TI/16 (Item 16 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Electronic office form processing appts. - uses video terminal keyboard to identify location and length of blanks on form and display lines on video

6/TI/17 (Item 17 from file: 350)
DIALOG(R) File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Security documents mfr. - by photographically applying images to light
sensitive coated web preprinted with pattern

?

7/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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012598740 **Image available**
WPI Acc No: 1999-404846/199934
XRPX Acc No: N99-301787

assignee

Computerized pre- press used in attaining fast, easy and efficient
print publishing

Patent Assignee: DIGITAL-NET INC (DIGI-N)
Inventor: JECHA S; MITCHELL W A
Number of Countries: 018 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9928834	A1	19990610	WO 98US25474	A	19981201	199934 B

Priority Applications (No Type Date): US 97982438 A 19971202

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9928834	A1	E	39	G06F-017/24	

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
MC NL PT SE

Abstract (Basic): WO 9928834 A1

NOVELTY - A client computer accesses the web site of a server in step 300 as referenced by a uniform resource locator address through its web browser program and the user is authenticated using user information, before the client downloads the authoring program in step 302 from the user. The client **creates** a **document** in step 304 and then selects a save command in step 306 to **upload** the **document** to the server. A print command is then selected in step 308

DETAILED DESCRIPTION - Independent claims are included for a **computer pre -press** system and for a client computer, a server computer and a computer-readable medium storing a download program

USE - **Computer pre -press** in printing

ADVANTAGE - Attaining fast, easy and efficient print publishing

DESCRIPTION OF DRAWING(S) - The drawing is a diagram of

computerized pre -press method according to one embodiment of the invention

pp; 39 DwgNo 3/4

Title Terms: PRE; PRESS; ATTAIN; FAST; EASY; EFFICIENCY; PRINT; PUBLICATION

Derwent Class: T01

International Patent Class (Main): G06F-017/24

International Patent Class (Additional): G06F-017/21

File Segment: EPI

?

8/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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012205409 **Image available**
WPI Acc No: 1999-011515/199902
XRPX Acc No: N99-008689

Electronic pre- press **system for managing and controlling workflow of image files to user selectable output devices - in which print driver accepts compressed RIPPed data in addition to acting as multiplexer**

Patent Assignee: BAYER CORP (FARB)

Inventor: BOYLE R G; CATT J C; LUCIVERO J M; SMITH D D; WHITE F P

Number of Countries: 026 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 882580	A2	19981209	EP 98201825	A	19980603	199902 B
JP 11005351	A	19990112	JP 98170644	A	19980603	199912

Priority Applications (No Type Date): US 97869244 A 19970604

Cited Patents: No-SR.Pub

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 882580	A2	E	82	B41B-019/00	
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Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

JP 11005351	A		63	B41J-029/38	
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Abstract (Basic): EP 882580 A

The system processes raster data, and includes at least one computer terminal (45) for creating postscript data, and at least one Raster Image Processor (34) (RIP), for processing the postscript data into raster data.

A Print driver (41) is provided for managing and controlling the workflow of image files to a number of user selectable output devices (58,59) eg. digital colour printers, including image files containing raster image data.

USE - Managing **print files in electronic pre -press** system, by **processing** page description **format** data files eg. postscript of pdf data files into raster files (page pixel, image or video data **files**),. And **transferring** raster data to output devices.

ADVANTAGE - Enables inputting, tracking, processing, queuing, storing editing and printing of raster or bit-map data, and providing continuous output of raster images to e.g. image setters, platemakers, on-press imagers, digital proofers etc.

Dwg.2/46

Title Terms: ELECTRONIC; PRE; PRESS; SYSTEM; MANAGE; CONTROL; IMAGE; FILE; USER; SELECT; OUTPUT; DEVICE; PRINT; DRIVE; ACCEPT; COMPRESS; DATA; ADD; ACT; MULTIPLEX

Derwent Class: P74; P75; S06; T01

International Patent Class (Main): B41B-019/00; B41J-029/38

International Patent Class (Additional): G06F-003/12; G06F-017/00;

G06K-015/00; G06T-001/00

File Segment: EPI; EngPI

?

10/TI/1 (Item 1 from file: 347)
DIALOG(R)File 347:(c) 2000 JPO & JAPIO. All rts. reserv.

FORM PRINTING PROCESSING SYSTEM

10/TI/2 (Item 2 from file: 347)
DIALOG(R)File 347:(c) 2000 JPO & JAPIO. All rts. reserv.

DOCUMENT ISSUE CONTROL SYSTEM

10/TI/3 (Item 1 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Printing method using inkjet printer with water-color ink on vinyl acetate resin-made image-receiving layer of water-absorbing recording medium to give images on lumber like outdoor signboards with durability at low cost

10/TI/4 (Item 2 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Color printer for e.g. word processor, personal computer, workstation when producing document - has printing unit which attaches and prints mark to page in which color component in received document data is included

10/TI/5 (Item 3 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Cover sheet with encoded instructions

10/TI/6 (Item 4 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Internet information printing system for web page printing - downloads file for printing and adds it to HTML file to produce printing program to print web page

10/TI/7 (Item 5 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Electronic mail system for printing apparatus - has output unit that piles and outputs data of text file and appending file

10/TI/8 (Item 6 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Technical upgrade for facsimile apparatus - uses Internet address which can be entered for transmitting facsimile document which is converted to e-mail data and prints received e-mail data as facsimile document

10/TI/9 (Item 7 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Scaled-down raster image processor for use in an electronic printing system - comprises master controller, scaled-down controller, and personality module which provide limited print information to print

engine

10/TI/10 (Item 8 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Text and document image synthesing appts for image processing appts
e.g scanner, printer - includes output device outputs first image
information to external apparatus having display device so that external
apparatus may edit original image by using first image information

10/TI/11 (Item 9 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Image reproduction appts. for logo storage and printing e.g. in
digital copier - raster scans image, stores and retrieves customised
images of logos and letterheads at any required size for printing on
documents

10/TI/12 (Item 10 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Printer job classification e.g. for document scanner - queuing number
of jobs in mass storage buffer, and selecting jobs which do not require
operator intervention for printing

10/TI/13 (Item 11 from file: 350)
DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Print-out machine producing negotiable documents and transferring
funds - has terminal linked to central computer processing transactions
between parties and checks entries with data-base

?

10/5/7 (Item 5 from file: 350)
DIALOG(R) File 350:Derwent WPIX
(c) 2000 Derwent Info Ltd. All rts. reserv.

012370893 **Image available**
WPI Acc No: 1999-177000/199915
XRPX Acc No: N99-130514

**Electronic mail system for printing apparatus - has output unit that
piles and outputs data of text file and appending file**
Patent Assignee: CASIO COMPUTER CO LTD (CASK); CASIO DENSHI KOGYO KK
(CASK)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 11031112	A	19990202	JP 97188589	A	19970714	199915 B

Priority Applications (No Type Date): JP 97188589 A 19970714

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 11031112	A		10	G06F-013/00	

Abstract (Basic): JP 11031112 A

NOVELTY - An output unit piles and outputs the data of a text pile and an appending file. An automatic recognizing unit automatically recognizes the appending **file** which is **transmitted** by a transmitting unit. DETAILED DESCRIPTION - The transmitting unit is used to send out the text pile and the appending file by using electronic mail. A finalizing unit **forms** the character **modification** section of a **text** file into the appending file.

USE - For **printing** apparatus. Used for **e .g.** internet.

ADVANTAGE - Performs transmission and reception of electronic mail **document** with character **modification** . Eliminates necessity of using word **processor** softwares. Performs **form** overlay **printing** using a fixed **form** **format** in the appending **file** which is appended to the electronic mail. DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the electronic mail system.

Dwg.1/12

Title Terms: ELECTRONIC; MAIL; SYSTEM; PRINT; APPARATUS; OUTPUT; UNIT; PILE
; OUTPUT; DATA; TEXT; FILE; FILE

Derwent Class: T01

International Patent Class (Main): G06F-013/00

International Patent Class (Additional): G06F-003/12; G06F-017/21

File Segment: EPI

13/5/7 (Item 6 from file: 350)
DIALOG(R) File 350:Derwent WPIX
(c) 2000 Derwent Info Ltd. All rts. reserv.

010182061 **Image available**
WPI Acc No: 1995-083314/199512
XRPX Acc No: N95-066094

**Communications method for computer-supported printing - uses
communications structure to allow data exchange between different areas
of print process and printing machines**

Patent Assignee: MAN ROLAND DRUCKMASCH AG (MAUG); MAN ROLAND
DRUCKMASCHINEN AG (MAUG)

Inventor: SCHNEIDER J; WEICHMANN A

Number of Countries: 010 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 639456	A1	19950222	EP 94111829	A	19940729	199512 B
DE 4328026	A1	19950309	DE 4328026	A	19930820	199515
CA 2129891	A	19950221	CA 2129891	A	19940810	199521
US 5625758	A	19970429	US 94292434	A	19940818	199723
EP 639456	B1	19970924	EP 94111829	A	19940729	199743
DE 59404146	G	19971030	DE 504146	A	19940729	199749
			EP 94111829	A	19940729	
CA 2129891	C	19990420	CA 2129891	A	19940810	199934

Priority Applications (No Type Date): DE 4328026 A 19930820
Cited Patents: 3.Jnl.Ref; DE 2922964; EP 395890; EP 419811; WO 8907525;
EP 495563

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 639456	A1	G	12	B41F-033/00	
Designated States (Regional): CH DE FR GB IT LI NL SE					
DE 4328026	A1		12	B41F-033/16	
US 5625758	A		10	G06F-013/00	
EP 639456	B1	G	15	B41F-033/00	
Designated States (Regional): CH DE FR GB IT LI NL SE					
DE 59404146	G			B41F-033/00	Based on patent EP 639456
CA 2129891	C	E		G06F-013/14	
CA 2129891	A			G06F-013/14	

Abstract (Basic): EP 639456 A

A communications structure connects areas of the print process, which operate on a digital basis independently of the printing machines (1,2,3) and which enable the illustrations of the entire print form. Each of the printing machines has one control unit (20,21,22).

The communications structure allows a data exchange between the different areas and the print machines so that data requests can be operated type neutral in both directions and data obtained for controlling the printing machine obtained from machine type independent data.

ADVANTAGE - Optimizes communications between different areas of printing process, especially between printing pre-shape and print machine.

Dwg.1/4

Title Terms: COMMUNICATE; METHOD; COMPUTER; SUPPORT; PRINT; COMMUNICATE;
STRUCTURE; ALLOW; DATA; EXCHANGE; AREA; PRINT; PROCESS; PRINT; MACHINE
Derwent Class: P74; S06; T01
International Patent Class (Main): B41F-033/00; B41F-033/16; G06F-013/00;
G06F-013/14
International Patent Class (Additional): G06F-019/00
File Segment: EPI; EngPI

21/TI/1 (Item 1 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Documentation apparatus for printing in fixed form documents e.g. postcard, has printing prohibition unit which prohibits printing of input document corresponding to non-printing area

21/TI/2 (Item 2 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Layout conversion procedure of layout converter - involves changing layout of document information written in document structure description language to layout that is different from first stage layout

21/TI/3 (Item 3 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Printer e.g. tape printer - has printing controller to print character string by lateral printing along side direction of printing paper

21/TI/4 (Item 4 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Layout processor for desktop publishing used in printing e.g. catalogue, magazine, pamphlet, book - has screen that displays starting point coordinates, rectangular arrangement height, and surface rectangular arrangement width of typesetting area

21/TI/5 (Item 5 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Document production appts with colour printing/display function e.g. Japanese word processor - has display unit that displays specific data by many gradations according to setting in multi-gradation display mode

21/TI/6 (Item 6 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Character data editing appts. e.g. Japanese word processor which controls printing of address on e.g. postcard - inserts space in character data position which follows predetermined character data or character-string data when stored specific character data or character-string data is included in several input character data

21/TI/7 (Item 7 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Image data synthesis method for direct mail - involves combining individual data and image data i.e. extracted from image database to produce print data to print illustration contents with individual data e.g. address

21/TI/8 (Item 8 from file: 350)

DIALOG(R)File 350:(c) 2000 Derwent Info Ltd. All rts. reserv.

Non WYSIWYG word processor e.g. tape printer - changes shape of cursor according to format set in text data to allow easy discernment of range and content of difficult to display format information

12/TI/1 (Item 1 from file: 15)
DIALOG(R)File 15:(c) 2000 Bell & Howell. All rts. reserv.

The role of content management in a digital production environment

12/TI/2 (Item 2 from file: 15)
DIALOG(R)File 15:(c) 2000 Bell & Howell. All rts. reserv.

Digital & prepress links: Focus on digital

12/TI/3 (Item 1 from file: 635)
DIALOG(R)File 635:(c) 2000 Bell & Howell. All rts. reserv.

Jetform extends cross platform workflow solution with new OS/2 forms product

12/TI/4 (Item 1 from file: 275)
DIALOG(R)File 275:(c) 2000 The Gale Group. All rts. reserv.

Some print highlights are out of the spotlight. (Print '97 trade show, McCormick Place, Chicago, Sep 3-10) (Industry Trend or Event)

12/TI/5 (Item 1 from file: 621)
DIALOG(R)File 621:(c) 2000 The Gale Group. All rts. reserv.

Lexmark's Optra Forms Filler software makes completing e-forms easy on-the-fly forms input.

12/TI/6 (Item 2 from file: 621)
DIALOG(R)File 621:(c) 2000 The Gale Group. All rts. reserv.

Adobe Announces Technology Support for New Heidelberg/Creo Prepress Solution.

12/TI/7 (Item 3 from file: 621)
DIALOG(R)File 621:(c) 2000 The Gale Group. All rts. reserv.

JETFORM CORPORATION SUPPORTS NEXT GENERATION PRINT ARCHITECTURE BY NOVELL, HP AND XEROX

12/TI/8 (Item 4 from file: 621)
DIALOG(R)File 621:(c) 2000 The Gale Group. All rts. reserv.

JETFORM RELEASES APPLICATION DEVELOPER'S TOOLKIT TO SUPPORT EXPANDING FAMILY OF VARS

12/TI/9 (Item 1 from file: 636)
DIALOG(R)File 636:(c) 2000 The Gale Group. All rts. reserv.

ADOBE SYSTEMS: Adobe announces technology support fo for new Heidelberg/Creo prepress solution.

12/TI/10 (Item 1 from file: 813)
DIALOG(R)File 813:(c) 1999 PR Newswire Association Inc. All rts. reserv.

Adobe and Autologic Information International Sign Licensing Agreement

12/TI/11 (Item 2 from file: 813)

DIALOG(R)File 813:(c) 1999 PR Newswire Association Inc. All rts. reserv.

JETFORM EXTENDS CROSS PLATFORM WORKFLOW SOLUTION WITH NEW OS 2 FORMS
PRODUCT

12/TI/12 (Item 1 from file: 613)

DIALOG(R)File 613:(c) 2000 PR Newswire Association Inc. All rts. reserv.

Mediaflex.Com Announces Online Print Center Version 3.0

12/TI/13 (Item 1 from file: 16)

DIALOG(R)File 16:(c) 2000 The Gale Group. All rts. reserv.

TECHNOLOGY. (More sophisticated technology is needed to access) (retail,
print and online environment.)

12/TI/14 (Item 2 from file: 16)

DIALOG(R)File 16:(c) 2000 The Gale Group. All rts. reserv.

Seybold.com. (Brief Article)

12/TI/15 (Item 3 from file: 16)

DIALOG(R)File 16:(c) 2000 The Gale Group. All rts. reserv.

TOP 50 Color Digital Printers.

12/TI/16 (Item 1 from file: 553)

DIALOG(R)File 553:(c) 2000 The HW Wilson Co. All rts. reserv.

Focus on digital.

?

18/9/2 (Item 2 from File: 810)
DIALOG(R) File 810:Business Wire
(c) 1999 Business Wire . All rts. reserv.

0527452 BW0067

KINKOS: Kinko's heightens "Digital Revolution" by launching superior electronic document distribution and production system;

October 24, 1995

Byline: Business Editors
Dateline: Speed, ease-of-use, 24-hour service and international reach
are <* key benefits<*<* VENTURA, Calif.
Time: 07:15 PT
Word Count: 904

Speed, ease-of-use, 24-hour service and international reach are key benefits

VENTURA, Calif.--(BUSINESS WIRE)--Oct. 24, 1995--Kinko's Inc. Tuesday announced the introduction of **Kinkonet**, a new way of producing and distributing documents through Kinko's international network of branch offices.

Kinkonet allows companies to increase efficiency while saving time and money by transmitting information electronically from one site and turning it into finished documents at locations across the country simultaneously, without ever having to leave the office.

"Kinko's understands that speed, efficiency, and convenience are vital in today's business environment," said Paul Orfalea, founder and chairperson, Kinko's Inc. "Through **Kinkonet**'s digital information transmission, companies can quickly produce customized reports, proposals, transparencies and other critical business documents for distribution to clients or employees at points all over the U.S., as well as Canada, Japan, the Netherlands and soon in Korea.

"Now they can do this without ever having to go to a graphic resource, print shop, or overnight delivery service provider. Likened to 'one-stop shopping' via the computer, **Kinkonet** will change the way businesses do business and how they think about documents."

How **Kinkonet** works is simple and user-friendly:

- Using software provided by Kinko's, customers can send documents (with complete production and distribution instructions) electronically, 24-hours-a-day, from their office or home computer to a dedicated **Kinkonet** staff member who reviews the order and confirms receipt and cost with the customer.
- The **Kinkonet** staff will electronically and simultaneously transmit the customer's order to one or more Kinko's locations domestically or internationally, depending upon the customer's order.
- The documents (including text, graphics and finishing services) can be the same or customized at each end destination.
- Customers can choose from a wide variety of services: quality black and white, high-resolution graphics and color, oversize copies, transparencies, tabs binding and laminating services, among others.
- To ensure accuracy, customers can proof the final documents by fax before they are printed, bound and delivered.
- For ease in payment, customers can pay by credit card or on an existing corporate account just as if the project had been manually brought into a Kinko's location.

Kinkonet is the most exciting product Kinko's has offered to its customers in its 25-year history," said Dan Frederickson, president of Kinko's Inc. "The value-added service offers customers

tangible benefits necessary in a competitive world -- speed, efficiency, accessibility and reach on a global scale. **Kinkonet** is one of the largest and most sophisticated retail distribution and print network of any available today."

The **Kinkonet** software is extremely easy to use. Each screen will let customers make simple decisions about project specifications and, possibly, remind customers about options they may have overlooked. If questions arise, **Kinkonet** specialists are available around-the-clock to answer questions and guide customers through the ordering process.

Kinkonet can handle a wide range of projects, from a small number of documents being transmitted for production from one location to another, to complex projects involving high-volume color and graphics, binding, tabs and multiple-point delivery to different cities in both the United States and abroad.

When the project is completed the files can be stored electronically for updating and re-printing at another time. This enables the customer to reduce heavy storage costs and obsolescence of excess, dated materials.

"A practical example when to use **Kinkonet** is if a busy executive needs to make quarterly financial presentations in six regions of the country, and she needs to provide a packet of materials, customized by city, for each participant," Frederickson said. "At the touch of a button, she can send her information to be distributed electronically and then produced in the cities she requests. Delivery is provided in each city. It's very simple and convenient.

"The **Kinkonet** service is available to anyone, but will best serve companies that do business in more than one area and find value in decreasing production and delivery time," he continued. "With

Kinkonet, customers can leave the hassles, deadlines and project management to a team of dedicated professionals while being assured the job will be done on time and exactly as requested."

The **Kinkonet** software, available for both Macintosh and Windows platforms, is being provided free of charge to corporate clients, and documents can be sent using any Hayes-compatible modem. To ensure confidentiality, the entire **Kinkonet** system was developed with full encryption, multiple firewalls and proprietary security devices.

The software -- both internal and for client use -- was created exclusively for Kinko's by Freemail Inc. of Missoula, Mont.

Founded in 1970 with one store, Kinko's has evolved into one of the largest chains of document production and business services stores in the world. The company currently operates more than 800 branch offices in the United States, and has an additional 14 international branches in Canada, Japan and the Netherlands.

With headquarters in Ventura, Kinko's is a privately held cooperative organization with 20,000 co-workers worldwide. For additional information call 800/2-KINKOS.

Editor's Note: B-roll footage demonstrating the technology and benefits of service is available via hard copy or available on Tuesday, Oct. 24, from 2:30 to 2:45 p.m. EDT on Galaxy C6, Transponder 17, Audio 6.2 and 6.8. Footage will be re-fed on Fri., Oct. 27, same time and coordinates as above.

Additional press kit materials as well as **Kinkonet** Software (in PC or Mac) are available on request.

MEW/la

CONTACT: Kinko's Inc., Ventura
Laura McCormick, 805/652-4129

or

Fleishman-Hillard
Liana Miller, Richele Craveiro, 213/629-4974

KEYWORD: CALIFORNIA

INDUSTRY KEYWORD: COMPUTERS/ELECTRONICS COMED
TELECOMMUNICATIONS PRODUCT

?

File 256:SoftBase:Reviews,Companies&Prods. 85-2000/Aug

(c)2000 Info.Sources Inc

File 278:Microcomputer Software Guide 2000/Sep

(c) 2000 Reed Elsevier Inc.

Set	Items	Description
S1	99	(SOFTWARE?? OR APPLICATION?? OR COMPUTER? OR SERVER? OR ON-LINE OR ON(W)LINE OR WEB OR INTERNET OR PROGRAM?? OR AUTOMAT? OR INSTANT? OR ELECTRONIC OR E OR VIRTUAL OR DIGITAL) (3N) (PRE-PRESS? OR PRE(W) (PRESS? OR PRINT?) OR PREPRINT?)
S2	524	(ONLINE OR ON(W)LINE OR WEB OR INTERNET OR E OR VIRTUAL) (3-N) (PRINT? OR LITHOGRAPH?)
S3	11738	(CREAT? OR FILL? OR ENTER? OR EDIT? OR MODIF? OR AMEND? OR REVIS? OR POLISH? OR AUTHOR? OR PRODUC? OR ORIGINAT?) (3N) (TEMPLATE? OR FORM? ? OR DOCUMENT? OR FILE? OR TEXT? OR IMAGE? OR GRAPHIC? OR PICTURE? OR PHOTO? OR DRAWING OR WYSIWYG)
S4	3241	(DOWNLOAD? OR SUBMIT? OR UPLOAD? OR TRANSMIT? OR TRANSFER? OR SEND? OR RECEIV?) (3N) (TEMPLATE? OR DOCUMENT? OR FORM? ? OR FILE? OR EDIT? OR APPLET? OR PLUG(W)IN? ? OR PLUGIN? ?)
S5	1273	(TRANSLAT? OR FORMAT? OR INTERPRET? OR PREP? OR CREAT? OR - CONVERT? OR TRANSFORM? OR CHANG? OR SET? OR CONFIGUR? OR ARRANGING? OR TRANSLAT? OR PROCESS?) (5N) (FILE? ? OR FORM? OR DOCUMENT? ? OR TEMPLAT?) (5N) PRINT?
S6	0	S1 AND S3 AND S4 AND S5
S7	8	S2 AND S3 AND S4 AND S5
S8	39	S1 AND S3
S9	3	S8 AND S4
S10	7	S8 AND S5
S11	2	S1 AND S4 AND S5
S12	3	(PREPRESS OR PRE(W)PRESS OR WYSIWYG) (3N)APPLET? ?
?		

7/TI/1 (Item 1 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

7/TI/2 (Item 2 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

7/TI/3 (Item 3 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Digital File Transfer: Options Abound, Confusion Reigns

7/TI/4 (Item 4 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: JetForm lays out plan to absorb Delrina

7/TI/5 (Item 5 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Designers Do Windows for Fun and Profit

7/TI/6 (Item 6 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Printing: Company duplicates pages, not efforts

7/TI/7 (Item 7 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Firm Aims for Production Market

7/TI/8 (Item 8 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: High-Wire Act: Electronic Docs
?

7/5/6 (Item 6 from file: 256)
DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.
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00093063 DOCUMENT TYPE: Review

PRODUCT NAMES: Output Server (620131)

TITLE: Printing: Company duplicates pages, not efforts
AUTHOR: Baum, David
SOURCE: LAN Times, v13 n14 p46(2) Jun 24, 1996
ISSN: 1040-5917
HOMEPAGE: <http://www.lantimes.com>

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

Dazel's Output Server, a product that centralizes management of and coordinates access to output processes and destinations, is used by R.R. Donnelly & Sons' Financial Printing and Information Services Division as the basis for a reengineered page composition network. The network is used to **create financial documents**, manage the proofing process, and route pages globally. It also automates conversion of documents into such **formats** as Adobe Systems' PostScript, Hewlett-Packard's (HP's) **Printer Control Language (PCL)**, Hypertext Markup Language (HTML), and plain text. Dazel Express, the client-based module, allows users to **send documents** to different **printers**, fax machines, and e-mail addresses using drag-and-drop icons on the desktop. Users can also pause, delete, and resume print jobs, and move them among queues. Output Server provides many features that would otherwise require expensive custom programming to acquire.

COMPANY NAME: Dazel Corp (558079)
DESCRIPTORS: Page Composition; HTML; Print Utilities; Printing & Graphic Arts; Network Utilities; Desktop Publishing; LANs; Network Software; Remote Printing
REVISION DATE: 20000630

7/5/7 (Item 7 from file: 256)
DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.
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00092051 DOCUMENT TYPE: Review

PRODUCT NAMES: Company - Imation Publishing Software Corp (862151);
Company - Adobe Systems Inc (850527)

TITLE: Firm Aims for Production Market
AUTHOR: Staff
SOURCE: Graphic Arts Monthly, v68 n3 p98(1) Mar 1996
ISSN: 1047-9325
HOMEPAGE: <http://www.gammag.com>

RECORD TYPE: Review
REVIEW TYPE: Company

Luminous, an offspring of Adobe Systems, will market products that were formerly part of the Adobe **Prepress** group. Tools to be marketed include Portable **Document Format** (PDF) **production** tools, databases for **print** production, and World Wide **Web** products for **print** production. Various marketing methods will be used, including channel products to augment the current prepress line, and broad-based original equipment manufacturer (OEM) licensing and development services. Luminous is the exclusive global distributor of Adobe Virtual Network 1.0 for the Macintosh (AVN1/Mac), telecommunications software for **file transfer** and remote proofing. With AVN1/Mac, a remote delivery tool, **graphic arts print production** providers and their clients can **send/receive digital documents** via phone and ISDN lines, AppleTalk networks, or the Internet. Several other Luminous products are described.

COMPANY NAME: Imation Publishing Software Corp (615889); Adobe Systems Inc (394173)
SPECIAL FEATURE: Screen Layouts
DESCRIPTORS: Printing & Graphic Arts; Software Marketing; Electronic Publishing; Apple Macintosh; Graphic Arts; Network Software; Page Composition
REVISION DATE: 19980730

9/TI/1 (Item 1 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

9/TI/2 (Item 2 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Crossing the Bridge: Imaging Services Extend the Local-Area Network

9/TI/3 (Item 3 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Go With the Flow
?

10/TI/1 (Item 1 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

10/TI/2 (Item 2 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Adobe Acrobat 4.0

10/TI/3 (Item 3 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: The right digital tools up productivity 50 percent

10/TI/4 (Item 4 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Software to Edit: Documents in PDF

10/TI/5 (Item 5 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Repurposing Content for Cross-Media Marketing

10/TI/6 (Item 6 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Covering All the Bases: Industrial-strength databases can manage...

10/TI/7 (Item 7 from file: 256)
DIALOG(R)File 256:(c)2000 Info.Sources Inc. All rts. reserv.

TITLE: Moore Unveils Prepress Software
?

10/5/7 (Item 7 from file: 256)
DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.
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00083123 DOCUMENT TYPE: Review

PRODUCT NAMES: Moore Digital Print Management Systems (584525)

TITLE: Moore Unveils Prepress Software
AUTHOR: Staff
SOURCE: Business Documents, v8 n6 p21(1) Jul 1995

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

Moore Digital Print Management Series, a new workflow process and global digital network product, provides a network for **creation**, distribution, and **printing** of **documents**. It also includes important functions for the overall digital on-demand **print** management **process**. A vendor spokesman says the product gives users automated solutions for many tasks, including **creation** and **printing** of customized color **documents**. Digital **printing** is streamlined with Moore's Digital BrochureShop and Digital Pilot technology; BrochureShop offers **templates** for quick **creation** of promotional literature, and Digital Pilot makes sure the product is correctly designed and printed on the first pass. Digital ColorQuick technology integrates software and hardware to combine text, images, and graphics in a continuous workflow process. User advantages include faster communications, lower shipping costs, and a full-functioned environment for sending, receiving, distribution, and global printing.

COMPANY NAME: Moore Business Forms & Systems (610895)
DESCRIPTORS: Network Software; Document Management; Print Utilities;
Business Forms; Forms Generators
REVISION DATE: 19980530

File 238:Abs. in New Tech & Eng. 1981-2000/Sep
(c) 2000 Reed-Elsevier (UK) Ltd.
File 108:Aerospace Database 1962-2000/Oct
(c) 2000 AIAA
File 8: Ei Compendex(R) 1970-2000/Sep W3
(c) 2000 Engineering Info. Inc.
File 77:Conference Papers Index 1973-2000/Jul
(c) 2000 Cambridge Sci Abs
File 35:Dissertation Abstracts Online 1861-2000/Jul
(c) 2000 UMI
File 202:Information Science Abs. 1966-2000/Issue 6
(c) Information Today, Inc
File 65:Inside Conferences 1993-2000/Oct W2
(c) 2000 BLDSC all rts. reserv.
File 2:INSPEC 1969-2000/Oct W2
(c) 2000 Institution of Electrical Engineers
File 14:Mechanical Engineering Abs 1973-2000/Sep
(c) 2000 Cambridge Sci Abs
File 233:Internet & Personal Comp. Abs. 1981-2000/Oct
(c) 2000 Info. Today Inc.
File 94:JICST-EPlus 1985-2000/Jun W1
(c)2000 Japan Science and Tech Corp(JST)
File 111:TGG Natl.Newspaper Index(SM) 1979-2000/Oct 12
(c) 2000 The Gale Group
File 603:Newspaper Abstracts 1984-1988
(c) 1999 Bell & Howell
File 483:Newspaper Abstracts Daily 1986-2000/Oct 10
(c) 2000 Bell & Howell
File 6:NTIS 1964-2000/Oct W5
Comp&distr 2000 NTIS, Intl Cpyrght All Right
File 144:Pascal 1973-2000/Oct W2
(c) 2000 INIST/CNRS
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info
File 34:SciSearch(R) Cited Ref Sci 1990-2000/Oct W1
(c) 2000 Inst for Sci Info
File 99:Wilson Appl. Sci & Tech Abs 1983-2000/Aug
(c) 2000 The HW Wilson Co.

Set	Items	Description
S1	6454	(SOFTWARE?? OR APPLICATION?? OR COMPUTER? OR SERVER? OR ON-LINE OR ON(W)LINE OR WEB OR INTERNET OR PROGRAM?? OR AUTOMAT? OR INSTANT? OR ELECTRONIC OR E OR VIRTUAL OR DIGITAL) (3N) (PRE-PRESS? OR PRE(W) (PRESS? OR PRINT?) OR PREPRINT?)
S2	7280	(ONLINE OR ON(W)LINE OR WEB OR INTERNET OR E OR VIRTUAL) (3-N) (PRINT? OR LITHOGRAPH?)
S3	356326	(CREAT? OR FILL? OR ENTER? OR EDIT? OR MODIF? OR AMEND? OR REVIS? OR POLISH? OR AUTHOR? OR PRODUC? OR ORIGINAT?) (3N) (TEMPLATE? OR FORM? ? OR DOCUMENT? OR FILE? OR TEXT? OR IMAGE? OR GRAPHIC? OR PICTURE? OR PHOTO? OR DRAWING OR WYSIWYG)
S4	35828	(DOWNLOAD? OR SUBMIT? OR UPLOAD? OR TRANSMIT? OR TRANSFER? OR SEND? OR RECEIV?) (3N) (TEMPLATE? OR DOCUMENT? OR FORM? ? OR FILE? OR EDIT? OR APPLET? OR PLUG(W)IN? ? OR PLUGIN? ?)
S5	8449	(TRANSLAT? OR FORMAT? OR INTERPRET? OR PREP? OR CREAT? OR - CONVERT? OR TRANSFORM? OR CHANG? OR SET? OR CONFIGUR? OR ARRANG? OR TRANSLAT? OR PROCESS?) (5N) (FILE? ? OR FORM? OR DOCUMENT? ? OR TEMPLAT?) (5N) PRINT?
S6	0	S1 AND S3 AND S4 AND S5
S7	4	S1 AND S3 AND S4
S8	4	RD (unique items)
S9	11	S1 AND S3 AND S5
S10	0	S1 AND S4 AND S5
?		

8/TI/1 (Item 1 from file: 8)

DIALOG(R)File 8:(c) 2000 Engineering Info. Inc. All rts. reserv.

Title: Eight steps to digital photography and pre-press

8/TI/2 (Item 1 from file: 233)

DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

CorelDraw 8

8/TI/3 (Item 2 from file: 233)

DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

Tailor 2.0

8/TI/4 (Item 3 from file: 233)

DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

Moving images without tears

?

8/5/3 (Item 2 from file: 233)

DIALOG(R) File 233:Internet & Personal Comp. Abs.

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00465735 97PU07-004

Tailor 2.0

Hannaford, Steve

Publish , July 1, 1997 , v12 n7 p52, 1 Page(s)

ISSN: 0897-6007

Company Name: EnFocus Software

Product Name: Tailor 2.0

Languages: English

Document Type: Software Review

Grade (of Product Reviewed): A

Hardware/Software Compatibility: Macintosh

Geographic Location: United States

Presents a very favorable review of Tailor 2.0 (\$869), a PostScript illustration editing utility from EnFocus Software Inc. (32, 888). Runs on Macintosh and compatible systems. Explains that the utility allows the user to open, view, and edit any Macintosh, Windows or Unix-generated PostScript or EPS files. Calls it fast, and notes that system requirements are minimal. Spotlights its ``spectacular'' **WYSIWYG editing** capabilities, and emphasizes its impressive font handling and object group handling. Notes that this is a useful tool for last-minute changes and conversions to images, to ready them for printing. Complains that the interface is difficult to learn and use. Concludes that ``Tailor 2.0 clearly belongs in the first-aid kit of any shop that handles incoming client **files** .''

Received an overall rating of four-and-a-half out of five. Includes one screen display and one scorecard. (kgh)

Descriptors: **Editor ; Image Processing ; Prepress ; Software Tools ; Utility Program**

Identifiers: Tailor 2.0; EnFocus Software

9/TI/1 (Item 1 from file: 238)
DIALOG(R)File 238:(c) 2000 Reed-Elsevier (UK) Ltd. All rts. reserv.

CIP3 Automatic for the printer

9/TI/2 (Item 1 from file: 2)
DIALOG(R)File 2:(c) 2000 Institution of Electrical Engineers. All rts. reserv.

Title: Making sure form follows function (forms management)

9/TI/3 (Item 2 from file: 2)
DIALOG(R)File 2:(c) 2000 Institution of Electrical Engineers. All rts. reserv.

Title: Keeping it simple: a combined database/forms management package

9/TI/4 (Item 1 from file: 233)
DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

CIP3 myth or miracle? -- The term has been kicked around since DRUPA '95, but little progress has been made. Time will tell if the vendors' visions will become...

9/TI/5 (Item 2 from file: 233)
DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

High-end digital photography enters steady growth -- New digital cameras and backs offer faster image capture and improved dynamic range

9/TI/6 (Item 3 from file: 233)
DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

EnFocus tool to find, fix PDF glitches

9/TI/7 (Item 4 from file: 233)
DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

The ruling class -- Today's RIPs run the show

9/TI/8 (Item 5 from file: 233)
DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

PSEExpress 1.0 -- This prepress tool can save you loads of time and free up your hardware while your PostScript job is being processed

9/TI/9 (Item 6 from file: 233)
DIALOG(R)File 233:(c) 2000 Info. Today Inc. All rts. reserv.

Deerfield Systems Inc. DisplayForm II 5.0

9/TI/10 (Item 1 from file: 94)
DIALOG(R)File 94:(c)2000 Japan Science and Tech Corp(JST). All rts. reserv.

Research report on standardization of color digital image systems.(Image system standardization study).1991 consignment from the Ministry of

International Trade and Industry, Agency of Industrial Sci. and
Technology. (Sponsor : Agency of Industrial Sci. and Technology).

9/TI/11 (Item 1 from file: 111)

DIALOG(R) File 111:(c) 2000 The Gale Group. All rts. reserv.

Xinet Announces Release of OPI Server Software; Integrated OPI server
designed to speed prepress production through high-performance file
serving, flexible print spooling, and efficient image management.

?

File 348:European Patents 1978-2000/Oct W02

(c) 2000 European Patent Office

File 349:PCT Fulltext 1983-2000/UB=20001005, UT=20000922

(c) 2000 WIPO/MicroPat

Set	Items	Description
S1	532	(SOFTWARE?? OR APPLICATION?? OR COMPUTER? OR SERVER? OR ON-LINE OR ON(W)LINE OR WEB OR INTERNET OR PROGRAM?? OR AUTOMAT? OR INSTANT? OR ELECTRONIC OR E OR VIRTUAL OR DIGITAL) (3N) (PRE-PRESS? OR PRE(W) (PRESS? OR PRINT?) OR PREPRINT?)
S2	12555	(ONLINE OR ON(W)LINE OR WEB OR INTERNET OR E OR VIRTUAL) (3-N) (PRINT? OR LITHOGRAPH?)
S3	155302	(CREAT? OR FILL? OR ENTER? OR EDIT? OR MODIF? OR AMEND? OR REVIS? OR POLISH? OR AUTHOR? OR PRODUC? OR ORIGINAT?) (3N) (TEMPLATE? OR FORM? ? OR DOCUMENT? OR FILE? OR TEXT? OR IMAGE? OR GRAPHIC? OR PICTURE? OR PHOTO? OR DRAWING OR WYSIWYG)
S4	39533	(DOWNLOAD? OR SUBMIT? OR UPLOAD? OR TRANSMIT? OR TRANSFER? OR SEND? OR RECEIV?) (3N) (TEMPLATE? OR DOCUMENT? OR FORM? ? OR FILE? OR EDIT? OR APPLET? OR PLUG(W)IN? ? OR PLUGIN? ?)
S5	7765	(TRANSLAT? OR FORMAT? OR INTERPRET? OR PREP? OR CREAT? OR - CONVERT? OR TRANSFORM? OR CHANG? OR SET? OR CONFIGUR? OR ARRANGING? OR TRANSLAT? OR PROCESS?) (5N) (FILE? ? OR FORM? OR DOCUMENT? ? OR TEMPLAT?) (5N) PRINT?
S6	205	S3(S)S4(S)S5
S7	8	S1 AND S6
S8	99	S2 AND S6
S9	15	S2/TI,AB,CM AND S6
S10	13	S9 NOT S7
S11	307	IC=G06F-017/21
S12	144	IC=G06F-017/24
S13	27	S11 AND S12
S14	3	S1 AND S13
S15	6	S1 AND S11
S16	665	S4(S)S5
S17	18	S1 AND S16
S18	10	S17 NOT S7
S19	2	AU="JECHA STEVEN"
S20	2	AU="MITCHELL WINFIELD A"
S21	2	S19 AND S20
?		

Status: Path 1 of [Dialog Information Services via Modem]

Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
Trying 3106900061...Open

DIALOG INFORMATION SERVICES

PLEASE LOGON:

***** HHHHHHHH SSSSSSSS?

Status: Signing onto Dialog

ENTER PASSWORD:

***** HHHHHHHH SSSSSSSS? *****

Welcome to DIALOG

Status: Connected

Dialog level 99.07.29D

Last logoff: 18nov99 15:08:30

Logon file001 19nov99 09:21:02

ANNOUNCEMENT **** ANNOUNCEMENT **** ANNOUNCEMENT
NEW

***Kompass Mexico (File 586)

***Market Guide Company Financials (File 100)

***Frost & Sullivan Market Engineering (File 767)

RELOADED

***CLAIMS(r)/U.S. Patents (Files 340,341,942)

***Gale Group PROMT (Files 16, 160)

***Gale Group F&S Index (File 18)

***RAPRA (File 323)

***Gale Group New Product Announcements (File 621)

REMOVED

***The Columbus Dispatch (File 495)

***A-V Online (File 46)

>>> Enter BEGIN HOMEBASE for Dialog Announcements <<<

>>> of new databases, price changes, etc. <<<

* * *

File 1:ERIC 1966-1999/Oct

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*File 1: File has been reloaded. See HELP NEWS 1.

Limits of /ED and /EJ currently not working.

Set Items Description

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?begin 411

19nov99 09:21:16 User219455 Session D603.1

\$0.18 0.055 DialUnits File1

\$0.18 Estimated cost File1

\$0.01 TYMNET

\$0.19 Estimated cost this search

\$0.19 Estimated total session cost 0.055 DialUnits